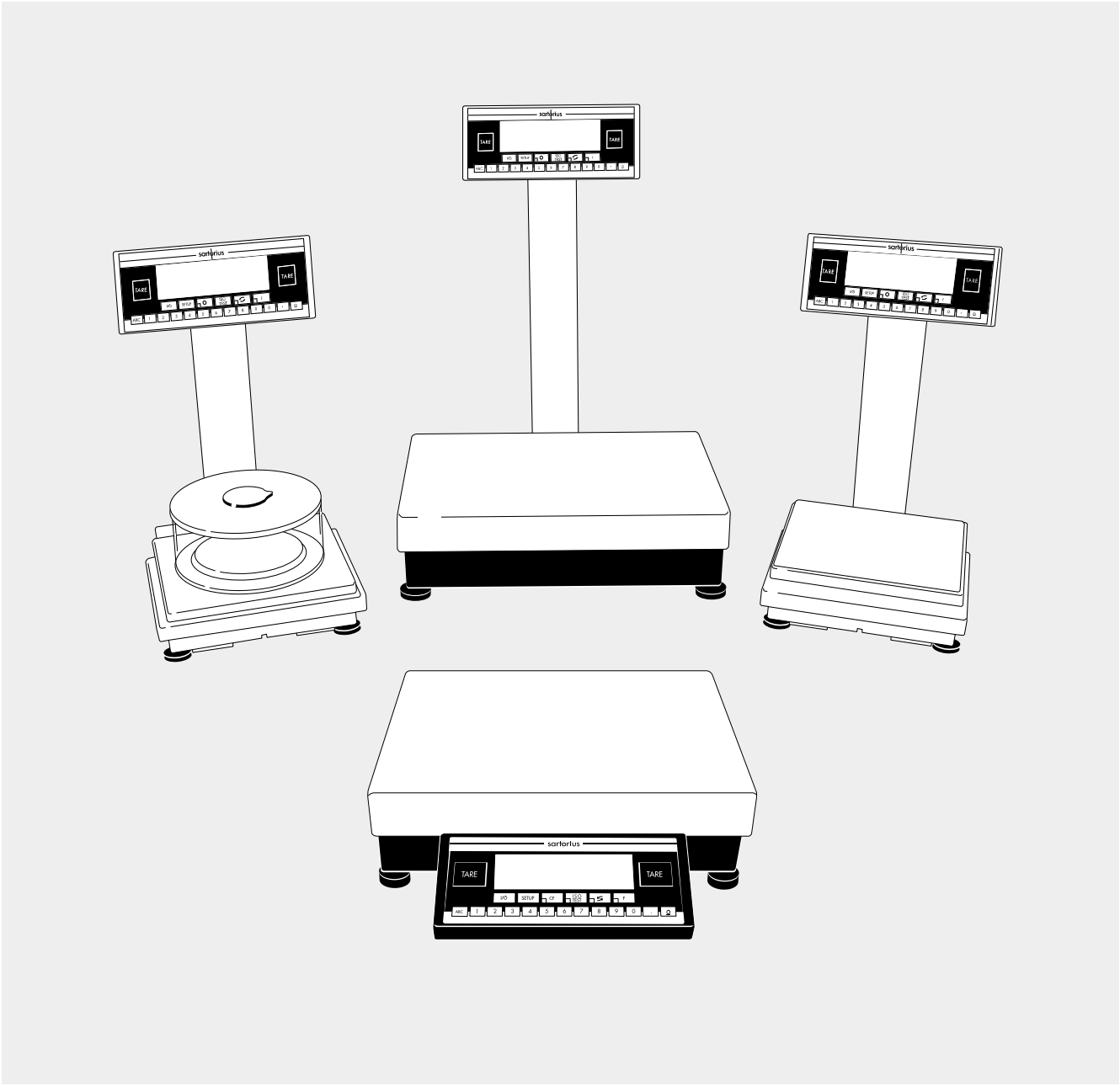
98648-006-47

Sartorius Factory Series

Industrial Weighing Technology

FB and FBG Models
Electronic Precision Scales
Operating Instructions



sartorius

Intended Use

The Factory Series from Sartorius offers precision scales with capacities ranging between 1 mg and 64 kg for measurement of mass. A broad range of special performance features make the Factory scales ideal for use as measuring and test equipment in ISO or GMP quality management systems. These features include:

– Fully automatic self-calibrating and adjustment function, isoTEST
– reproTEST for quick determination of the standard deviation to check the reproducibility of results
– ISO/GMP-compliant recording capability for printouts
– Password-protected menu lock

Factory scales meet the highest requirements on the accuracy and reliability of weighing results through the following features:

– Efficient filtering-out of vibration and unfavorable ambient conditions, such as vibrations, drafts, etc.
– Stable and reproducible results
– Excellent readability under any lighting conditions
– Rugged, durable weighing system

Factory scales save work and speed up simple routine applications through:

– Ultrafast response times
– Built-in applications (counting, animal weighing, weighing in percent, etc.)
– Automatic initialization when you switch on the scale
– Easy input of alphanumeric sample, lot and scale IDs
– Flexible, easy-to-use display and control unit
– Connectivity for control through an on-line computer

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Warnings and Safety Precautions

This scale has been constructed in accordance with the European Directives as well as international regulations and standards for operation of electrical equipment, electromagnetic compatibility, and the stipulated safety requirements. Improper use or handling, however, can result in damage and/or injury.

Read these operating instructions thoroughly before using your scale to prevent damage to the equipment. Keep these instructions in a safe place.

Follow the instructions below to ensure safe and trouble-free operation of your scale:

⚠ Do not use this scale in a hazardous area/location

⚠ Make sure that the voltage rating printed on the AC adapter is identical to your local line voltage

– The only way to switch the power off completely is to disconnect the AC adapter
– The scale housing is protected against harmful dust deposits and water splashes or jets – the housing is not completely dust-tight, however

  IP44 for FBG64EDE-H

  IP65 for all additional FB…EDE models

  IP54 for models with a weighing capacity ≤12 kg
– Protect the AC adapter from contact with liquid
– Connect only Sartorius accessories and options, as these are optimally designed for use with your Factory scale

When cleaning your scale, make sure that no liquid enters the scale housing; use only a slightly moistened cloth to clean the scale.

Do not open the scale housing. If the seal is broken, this will result in forfeiture of all claims under the manufacturer's warranty.

In case you have any problems with your scale:

○ contact your local Sartorius office, dealer or service center

Operating Design

The scales in the Factory Series consist of a weighing cell and a display and control unit.
In addition to the choice of power supply (via AC adapter or external rechargeable battery pack), your scale also has an interface port for connecting a printer, computer or universal remote control switch.

The display and control unit and the weighing cell can be set up separately. Operation of Factory balances follows a uniform "philosophy" which is described in this manual.

Unless otherwise specified, the information also refers to scale versions verified or verifiable for use in legal metrology (identified by the suffix: 0CE).

Keys

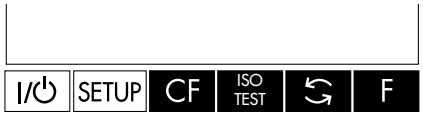
The functions used most often are assigned to their own specific keys. There are additional keys for assignment of other (multiple) functions, in some cases dependent on the current operating status (so-called "soft keys").

Each key is described in detail in the chapter entitled "Overview."

Normal Operation

In the operating mode, these four keys function as [CF], [ISOTEST]/[TEST], [⇆]/[TOGGLE] and [F]/[FUNCTION] keys.

Standard keypad version:



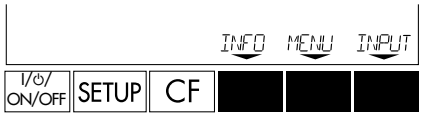
U.S. and Canadian keypad version:

Setup Mode

In the setup mode, these keys take on the function of arrow keys ([<] [v] [^] [>]).

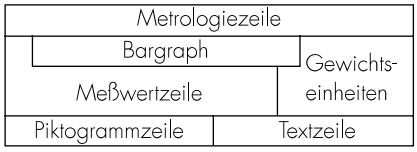
Soft Key Mode

The 'soft key' functions depend on the current operating status; the current function is indicated in the text line of the display. In this example, the soft keys are used to access Info, Menu and Input functions.



Display

The display is divided into six sections:



– Line for metrological data: Metrological specifications of the weighing platform.

  Max ...g d=...g

  Display during use as a legal measuring instrument:

  Max ...g Min ...g e=...g d=...g

– Bar graph: Display in percent of the weight on the scale relative to the maximum capacity and for over/under checkweighing

– Measured value line: Display of weight readout or alphanumeric input

Important Note Concerning Verified Scales Approved for Use as Legal Measuring Instruments in the EU*:

For verified scales that have a verification scale interval "e" which is greater than the scale interval "d," the last digit on the display is bordered.

– Weight unit display: Weight unit, other unit of measure, operating information

The values identified by "⚠" are not allowed to be used in legal metrological applications.

– Symbol display: Indicates operating status; application selected

– Text line: Prompts for operator guidance, soft key designations

See the "Data Output" section in the chapter entitled "Operating the Scale" for a detailed description of the information displayed in each of these sections.

* including the Signatories of the Agreement on the European Economic Area

Input

Numeric Input

To enter numbers:
Press the [1] [2] … [0] [·] keys

To store numbers entered:
Press the soft key

To interrupt/cancel numeric input:
Press [CF]

Alphabetic Input

To enter letters:
First press the [ABC] key, then press a letter soft key ([^] or [v]) repeatedly until the desired letter or special character is displayed in the text line

To store a word entered:
Press the soft key

To interrupt/cancel alphabetic input:
Press [CF]

Configuring Scale Operating Parameters

To set parameter options for configuring your scale, you can select the desired parameters from a list. The lists of parameter options comprise a menu, which has three levels.

For configuration functions:
Press the [SETUP] key; then press the *MENU* soft key

To move within a menu level:
Press [^] or [v]

To change to another menu level:
Press [<] or [>]

To confirm the selected parameter setting in the 3rd menu level:
Press [>]

"**o**" indicates the currently set parameter

Additional information is displayed in the text line. See the chapter entitled "Configuring the Scale" for a detailed description of all parameter settings.

To save setting and exit menu:
Press [SETUP]

To interrupt the parameter setting process without saving changes:
Press [I/⏻]/[ON/OFF]

Data Output

Your Factory scale is equipped with a data interface for connecting your choice of the following:

- Industrial printer
- Peripheral device (e.g., computer)
- Universal remote control switch

Printer

You can configure the print functions to meet your individual requirements by selecting the corresponding menu code.

You can have printouts generated automatically, or by pressing [⎙]/[PRINT]; dependent on or independent of the stability or time parameters; with or without IDs; and as standard or ISO/GMP-compliant printouts.

ISO: International Organization for Standardization

GMP: Good Manufacturing Practice

See the section on "Data Output Functions" in the chapter entitled "Operating the Scale" for a detailed description of data output options.

Interface Port

Instead of a printer, you may choose to connect a different peripheral device, e.g. a computer (PC). With an on-line PC you can control both the weighing cell and the display unit of the Factory scale.

Request messages are sent via the interface to initiate functions in the weighing cell and in the display unit. Some of the functions generate response messages.

See the section on "Data Output Functions" in the chapter entitled "Operating the Scale" for a detailed description of the interface port.

Error Codes

If you press a key that has no function, or which is blocked at a certain point in an application program, this error is indicated as follows:

- a double-beep is sounded as an acoustic signal, and
- where necessary, a message is displayed for 2 seconds in the text line, after which the text line returns to the previous display.

The response to an operator error is identical in all models of the Factory series. See the chapter entitled "Error Codes" for a detailed description.

Storing Settings

Storing Parameter Settings

The settings configured are stored in the scale's non-volatile memory. The most recent parameter settings are active when you switch on the scale.

Saving Parameter Settings

You can assign passwords in order to block access to the "Menu" and "Input" functions.

Getting Started

Storage and Shipping Conditions

Allowable storage temperature:
+0 °C …+40 °C

The packaging has been designed to ensure that the scale will not be damaged even if it is dropped from a weight of 80 centimeters (approx. 2.5 ft.). Do not expose the scale to extreme temperatures, blocks, shock, vibration or moisture.

Unpacking the Equipment

- ● After unpacking the equipment, check it immediately for any visible damage as a result of rough handling during shipment
- ○ Important Note:
  The display and control and the weighing platform are attached to each other by a connecting cable
- ○ If the equipment is damaged, see "Care and Maintenance" in the section entitled "Safety Inspection"

It is a good idea to save the box and all parts of the packaging until you have successfully installed the equipment. Only the original packaging provides the best protection for shipment. Before packing your equipment, unplug all connected cables to prevent damage. The cardboard strips between the display and control unit and the weighing platform are part of the protective packaging for shipment!

Warranty

Do not miss out on the benefits of our full warranty. Complete the warranty registration card, indicating the date of installation, and return the card to your Sartorius office or dealer.

Equipment Supplied

The equipment supplied includes the components listed below:

FB06BBE-S
- Scale with 12-pin data interface
- AC adapter
- Column for display and control unit
- Retainer
- Dust cover
- Shield ring
- Load plate support
- Load plate
- Glass cylinder/draft shield
- Draft shield cover

FB6CCE-H, FB2CCE-S
- Scale with 12-pin data interface
- AC adapter
- Column for display and control unit
- Retainer
- Dust cover
- Load plate shield
- Load plate

FB12CCE-S, FB6CCE-S, FB12CCE-I
- Scale with 12-pin data interface
- AC adapter
- Column for display and control unit
- Retainer
- Dust cover
- Load plate

FBG34EDE-H, FBG34EDE-P, FBG16EDE-H, FBG12EDE-P, FBG64EDE-S, FBG64EDE-H
- Scale with 12-pin data interface
- AC adapter
- Column for display and control unit
- Retainer
- Load plate

FBG64EDE-S0000B, FBG34EDE-P0000B
- Scale with 25-pin data interface
- AC adapter
- Load plate

Installation Instructions

Sartorius Factory Series Scales are designed to provide reliable weighing results under normal operating conditions. When choosing a location to set up your scale, observe the following so that you will be able to work with added speed and accuracy:

- Set up the scale on a stable, even surface
- Avoid placing the scale in close proximity to a heater or otherwise exposing the scale to heat or direct sunlight
- Protect the scale from direct exposure to drafts that come from open windows or doors
- Avoid exposing the scale to extreme vibration during weighing
- Protect the scale from aggressive chemical vapors
- Do not expose the scale to extreme moisture

Conditioning the Scale

Moisture in the air can condense on the surfaces of a cold scale whenever it is moved to a substantially warmer place. If you transfer the scale to a warmer area, make sure to condition it for about 2 hours at room temperature, leaving it unplugged from AC power. Afterwards, if you keep the scale connected to AC power, the continuous positive difference in temperature between the inside of the scale and the outside will practically rule out the effects of moisture condensation.

Seal on Scales Verified for Use in Legal Metrology in the EU*:

EU legislation requires that a control seal be affixed to the verified scale. The control seal consists of a sticker with the "Sartorius" logo. This seal will be irreparably damaged if you attempt to remove it. If the seal is broken, the validity of the verification will become void, and you must have your scale re-verified.

* including the Signatories of the Agreement on the European Economic Area

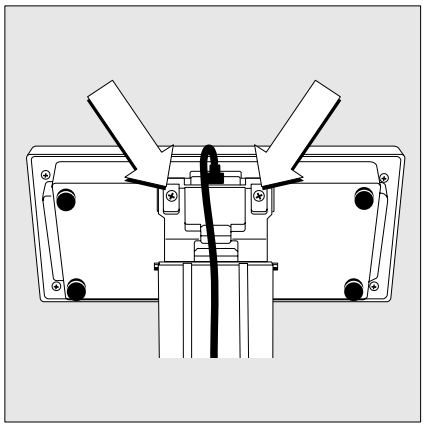
Mounting the Display and Control Unit

You can mount the display and control unit in one of 3 ways:

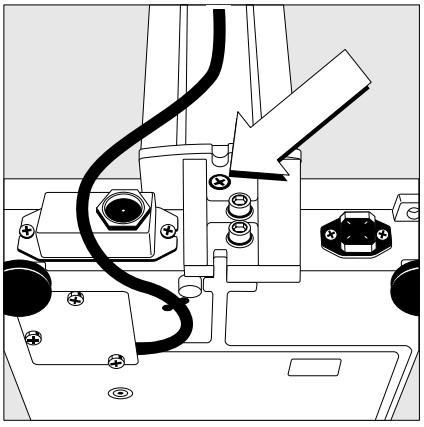
- on the column, which is then fastened to the back of the scale
- on the retainer, which is then fastened to the front of the scale
- on the retainer separately from the scale

Mounting the Control Unit and Column

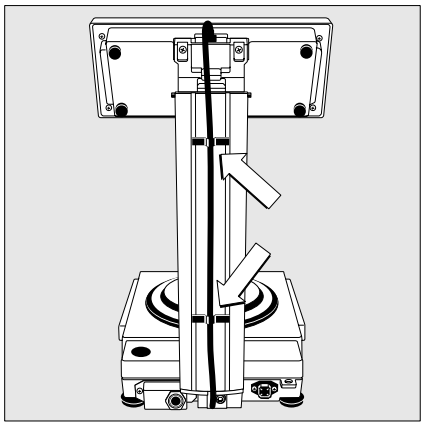
FB06BBE-S, FB6CCE-H, FB2CCE-S, FB12CCE-S, FB6CCE-S, FB12CCE-I



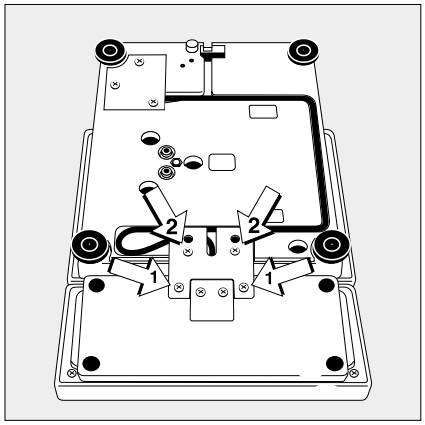
- Use the two Phillips head screws supplied to fasten the display and control unit to the column



- Attach the column to the scale using the screw supplied



- Fasten the connecting cable to the column using the two clips, and slide the cable into the cable channel under the scale



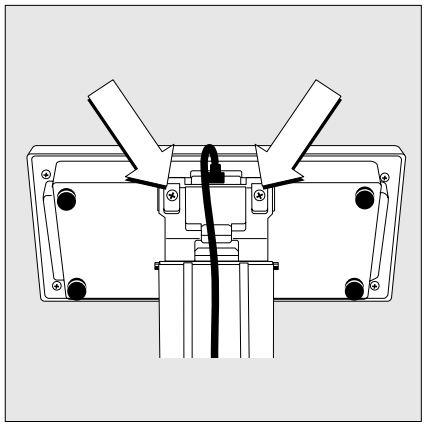
Fastening the Display and Control Unit to the Front of the Weighing Platform or Mounting it Separately

- Turn the scale over and place it on a cushioned surface to prevent damage to the weighing system
- Fasten the retainer to the display and control unit using the two Phillips head screws **1** (M4x12)
- Fastening the display and control unit to the weighing platform: Fasten the retainer with the two Phillips head screws **2** (M4x12) to the weighing platform
- Press the cable into the raceway (channel) as shown in the diagram on the left

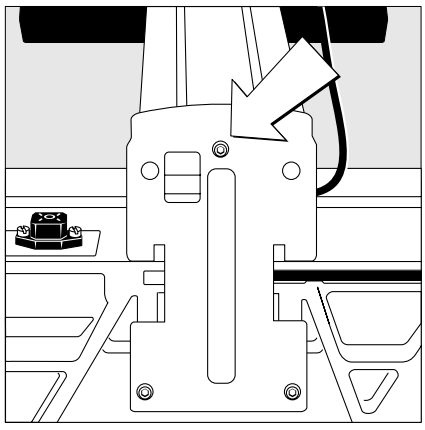
> Cable length: 55 cm (approx. 21.7 inches)

○ To order a longer cable, see the section entitled "Accessories"

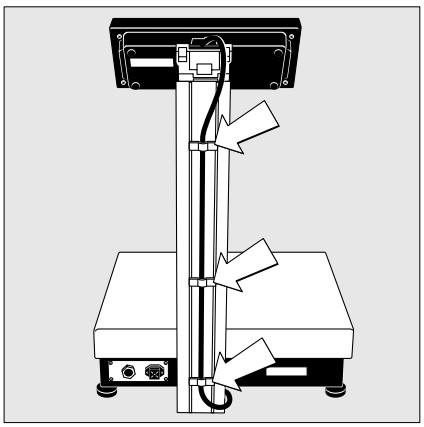
FBG34EDE-H, FBG34EDE-P, FBG16EDE-H, FBG12EDE-P, FBG64EDE-S, FBG64EDE-H



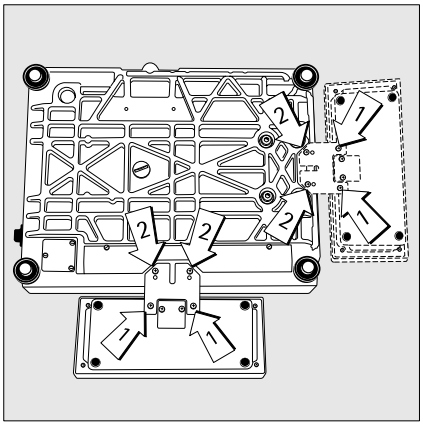
- Use the two Phillips head screws (M4x8) supplied to fasten the display and control unit to the column



- Attach the column to the scale using the screw (M4x20) supplied

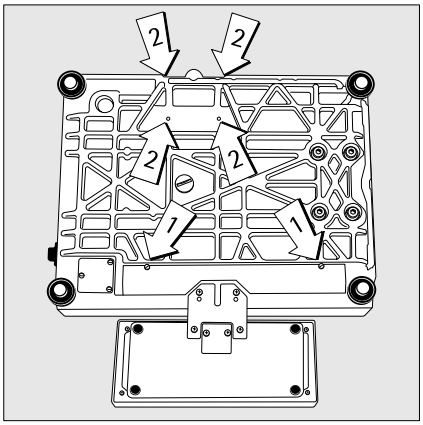


- Fasten the connecting cable to the column using the three clips



Installing the Display and Control Unit on the Retainer

- Turn the scale over and place it on a cushioned surface to prevent damage to the weighing system
- Remove the column retainer from the scale
- Fasten the display and control unit retainer to the display and control unit using the 2 Phillips head screws supplied (1) (M4x8)
- Fastening the retainer to the scale:
  Fasten the retainer to the scale using the Phillips head screws supplied (2) (M4x8)



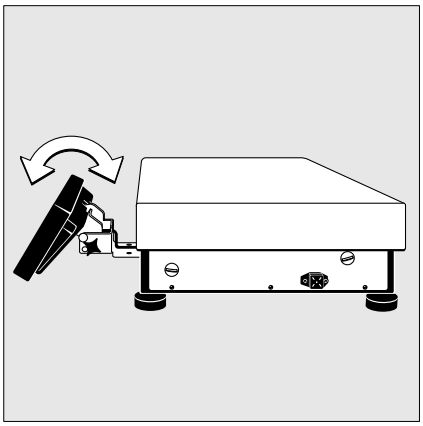
- Press the cable into the raceway (channel)
- Replace the cover on the cable raceway (1)
- Close the 4 bore holes using the caps supplied (2)

Remote Operation of the Display and Control Unit

- Turn the scale over and place it on a cushioned surface to prevent damage to the weighing system
- Remove the column retainer from the scale
- Close the 4 bore holes using the caps supplied (2)

> Cable length: at least 80 cm (approximately 31 inches)

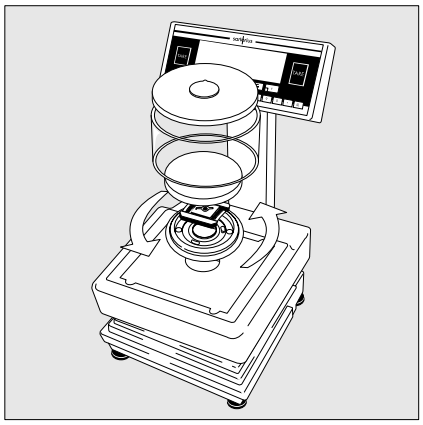
○ To order a longer cable, see the section entitled "Accessories"



Adjusting the Angle of the Display and Control Unit (only for models FBG34EDE-P0000B, FBG64EDE-S0000B or with Accessory YDH01F)

- Tilt the display and control unit to the desired position and tighten the knurled thumb screw to hold it in place.

Installing the Components



FB06BBE-S

- Place the following components on the scale in the order given below:

– Dust cover

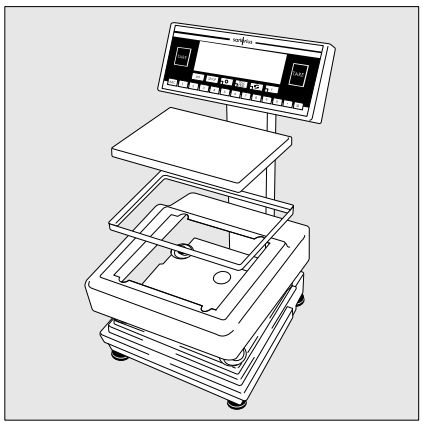
– Place the shield ring on the scale and turn it counterclockwise until it is securely positioned in place

– Load plate support

– Load plate

– Glass cylinder

– Draft shield cover



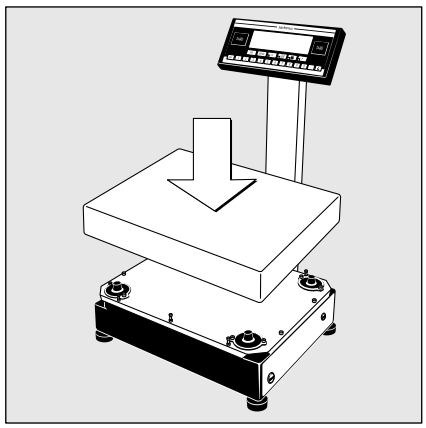
FB6CCE-H, FB2CCE-S, FB12CCE-S, FB6CCE-S, FB12CCE-I

- Place the following components on the scale in the order given below:

– Dust cover (remove backing from the adhesive surface)

– Load plate shield (depends on the type of model)

– Load plate



FBG34EDE-H, FBG34EDE-P, FBG16EDE-H, FBG12EDE-P, FBG64EDE-S, FBG64EDE-H

- Position the load plate

Connecting the Scale to AC Power

- Check the voltage rating and the plug design

– If they do not match,
contact your Sartorius office or dealer

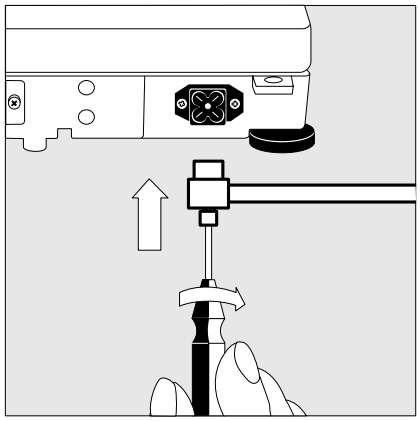
Use only:

– Original Sartorius AC adapters

– Power supplies approved by a certified or authorized technician

○ To use a main feeder cable from the ceiling or a CEE plug, have this equipment installed or mounted by an authorized technician in your facilities

○ To use an external rechargeable battery pack; see "Accessories" in the "Overview" section



- Insert the right-angle plug into the jack and use a screwdriver to tighten the slotted-head screw

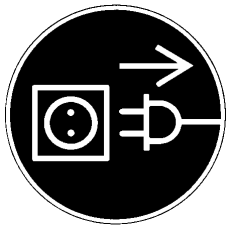
- To energize the scale with AC power:
Plug the AC adapter into a wall outlet (mains)

Safety Precautions

Information on Radio Frequency Interference

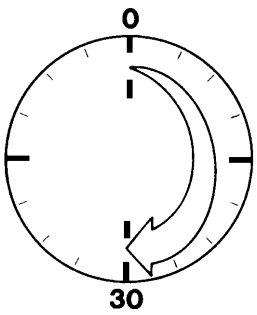
Note:
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. Changes or modifications not expressly approved by Sartorius AG could void the user's authority to operate the equipment.

The AC adapter rated to Class 2 can be plugged into any wall outlet without requiring any additional safety precautions. The ground or earth terminal is connected to the scale housing, which can be additionally grounded, if required. The data interface is also electrically connected to the scale housing (ground).



Connecting Electronic Peripheral Devices

- Make absolutely sure to unplug the scale from AC power before you connect or disconnect a peripheral device (printer or PC) to or from the interface port



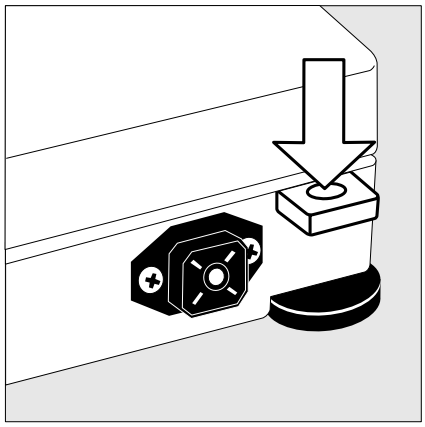
Warmup Time

To deliver exact results, the scale must warm up for at least 30 minutes after initial connection to AC power or after a relatively long power outage. Only after this time will the scale have reached the required operating temperature.

Using Verified Scales as Legal Measuring Instruments in the EU*:

○ Make sure to allow the scale to warm up for at least 24 hours after initial connection to AC power or after a relatively long power outage

* including the Signatories of the Agreement on the European Economic Area



Antitheft Locking Device

○ Only for models FB06BBE-S, FB6CCE-H, FB2CCE-S, FB12CCE-S, FB6CCE-S

To fasten an antitheft locking device, use the lug located on the back of the scale.

● Secure the scale at the place of installation, e.g., with a chain or a lock

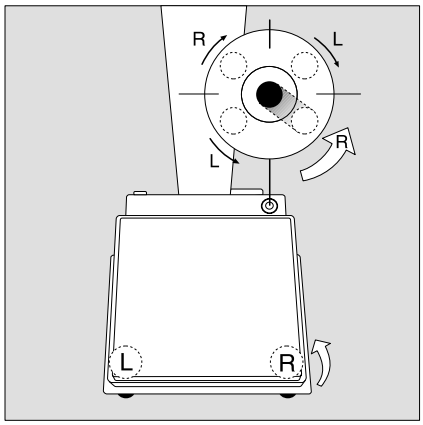
Leveling the Scale

Purpose:

– To compensate for unevenness at the place of installation

– To ensure exactly horizontal positioning of the scale for consistent reproducibility of the weighing results

Always level the scale again any time after it has been moved.



Leveling Scales FB06BBE-S, FB6CCE-H, FB2CCE-S, FB12CCE-S, FB6CCE-S, FB12CCE-I

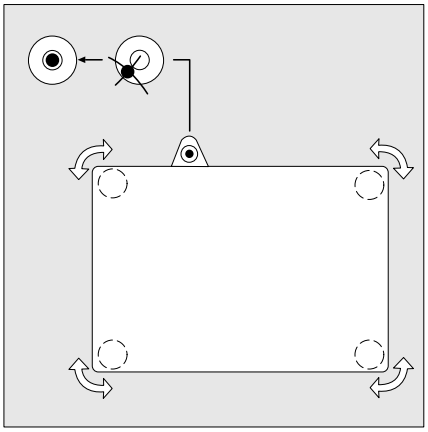
Only the two front feet are used for leveling.

● Retract the two rear feet

● Turn the two front feet as shown in the diagram until the air bubble is centered within the circle of the level indicator

> Several leveling steps are usually required

● Extend the two rear feet until they touch the surface on which the scale rests



Leveling Scales FBG34EDE-H, FBG34EDE-P, FBG16EDE-H, FBG12EDE-P, FBG64EDE-S, FBG64EDE-H

● Adjust the three leveling feet until the air bubble is centered within the circle of the level indicator

Configuring the Scale

Purpose

You can configure your Factory scale to meet individual requirements by entering user data and setting parameters in the Setup menu. You can also configure the display to show scale-specific information (such as the serial no.).

Setting the Function Switch for Using the Scale in Legal Metrology

To use the scale in legal metrology, the following functions must be activated by setting the switch as described below:

– Display: Verification scale interval ***e***; lower weighing range limit: ***Min***

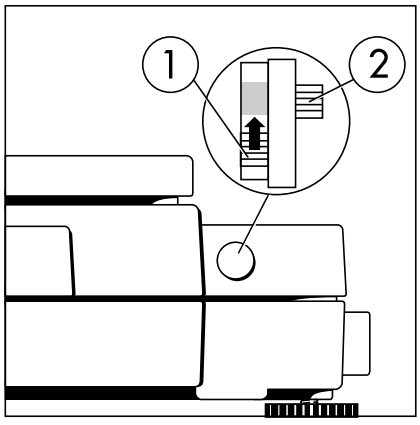
– External calibration/adjustment: Blocked

– MP8 interface emulation active

Preparation

● Remove the covering plate from the back of the scale housing

● Move switch 1 in the direction of the arrow



> Switch up:
external calibration blocked
Switch down:
external calibration accessible

> Note:
Do not move Switch 2

Setting the Language

Available Features

You can choose from 5 languages for the information display:

1 German

2 English (factory setting)

3 English with U.S. date/time format

4 French

5 Italian

6 Spanish

Selecting the Language

● Enter the corresponding number

● Press SETUP

'Info' Display

Purpose

To have information about the equipment displayed.

Features

You can have the following scale-specific information displayed:

– Program version number for the display and control unit

– Program version for the weighing cell

– Scale model

– Serial number of the weighing cell

Displaying Scale-Specific Information

● Select the Setup menu:
Press SETUP

● Select information: Press the [ISOTEST]/[TEST] (INFO soft) key

> Readout in measured value line: Version number of the display and control unit (see also "Data Output Functions," page 58, in the chapter entitled "Operating the Scale")

○ Select next item of information:
Press ^

> Readout in measured value line:
Next information

○ Select previous information:
Press v

> Readout in measured value line:
Previous information

○ Print information:
Press ⊙/[PRINT]

> Printout (example)

```
Mod.          FB6CCE-H
Ser. no.      70406906
Ver. no.      01-31-18
```
Software version
(display and control unit)
```
Ver. no.      00-20-13
```
Software version
(weighing platform)

● Exit the Setup menu:
Press SETUP

> Scale returns to previous status

Entering User Data (Input)

Purpose

To display, input or change user data. You can block access to these data by assigning a password.

Features

You can display, input or change the following user data:

– Workstation number* for the scale: ID (scale ID; max. 20 characters)*

– Weighing series number, to designate a series or lot: L ID (lot ID; max. 20 characters)*

– Weight set number for calibration/adjustment: W ID (weight ID; max. 14 characters)*

– Exact weight value for calibration/adjustment of the scale (see the section on "Calibration/Adjustment," starting on page 26 in the chapter entitled "Operating the Scale; in particular refer to page 30)

– Password for access to the Setup menu: Input and Setup: Menu (max. 8 characters)*

* A decimal point is displayed together with its preceding digit or character; it does, however, count as a separate character. This also applies when you enter S ID and NUM as well as to data entered via the interface.

** To delete user password: Enter a decimal point using the [·] key and confirm

Factory Settings

Password: No designation

If no password has been assigned, anyone can access the "Setup: Input" and "Setup: Menu" functions without entering a password.

If you assign a password and then forget what the word is, you can use the General Password (see Appendix) to access these menus.

Preparation

Display existing user data:

● Select the Setup program: Press [SETUP]

> The soft keys *INFO*, *MENU* and *INPUT* are displayed in the text line

● Select the user data input function: Press the *INPUT* softkey [F]/[FUNCTION]

> The password prompt is displayed

○ If access is blocked by a password: enter the password using the alphanumeric input keys

● Display user data: Press the *ENTER PASSW.* soft key [F]/[FUNCTION]

> The last 8 digits of a workstation/scale number (ID no.), if any ID is assigned, are displayed in the measured value line

Enter/Change Password

● Select the Setup menu: Press [SETUP]

> The soft keys *INFO*, *MENU* and *INPUT* are displayed in the text line

● Select the user data input function: Press the *INPUT* soft key [F]/[FUNCTION]

If you have already assigned a password:

> The password prompt is displayed

○ Enter the password

○ Press the *ENTER PASSW.* soft key [F]/[FUNCTION]

● Write down the password here:

Password = ...

If you no longer remember the password assigned:

○ Enter the General Password (see Appendix)

○ Press the *ENTER PASSW.* soft key [F]/[FUNCTION]

> The last 8 digits of a workstation/scale number (ID no.), if any ID is assigned, are displayed in the measured value line

● Select password setting: Press [∨]

> *PASSWORD* is displayed in the text line

> If a password exists, it is now displayed in the measured value line

● New password: Enter the letters/numbers for the new password (8 characters max.)*

The password "none" means that no password is stored.**

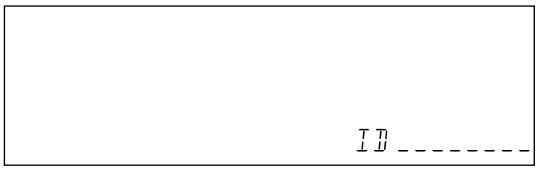
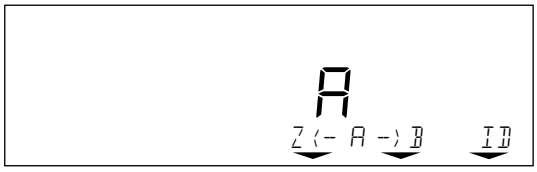
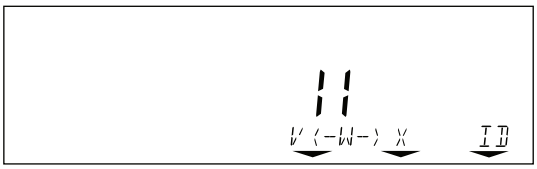
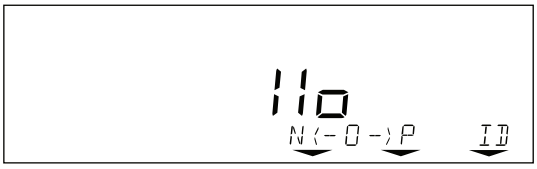
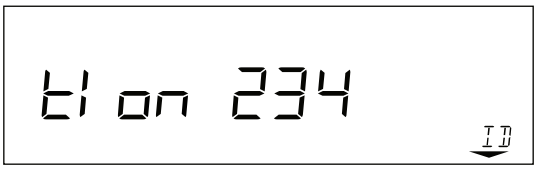
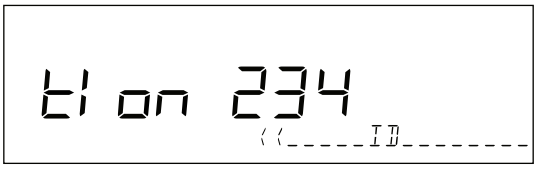
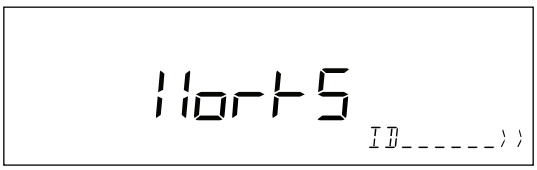
● Confirm input: Press [›]

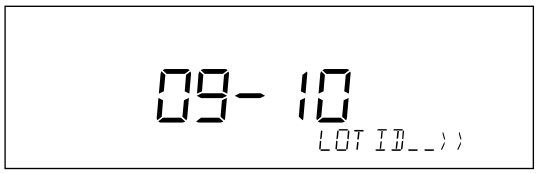
● Exit the Setup menu: Press [SETUP]

> Restart the application

Practical Example

Enter "Workstation 234" as Scale ID; Display and Print Other User Data

Step	Key (or instruction)	Display/Output
1. Select Setup menu, then Input; Display scale workstation ID (in this example: no ID number exists)	see Preparation	
2. Enter the first letter of the scale workstation ID	ABC	13th through 20th digits of ID displayed 
3. Set the letter "W"	∨ repeatedly, until the W appears in the middle	
4. Enter the next letter of the scale workstation ID	ABC	
5. Select the letter "o"	∧ repeatedly	
6. Repeat steps 4 and 5 with the appropriate letters (display "longer" values: see "Data Output Functions" on page 52)	ABC < >	
7. Store scale workstation ID	ID soft key (>)	
8. Display the 5th through 12th digits of the scale workstation ID	∧	

Step	Key (or instruction)	Display/Output
9. Display lot number (In this example: 09-10-96/ABC1)	[^]	13th through 20th digits displayed
10. Display 5th through 12th digits of lot no.	[<]	
11. Display other user data – Weight set no. – Exact calibration weight – Password	[<] [v] [^] [>]	
12. Print user data (example)	[⊙]/[PRINT]	ID WORKSTATION 234 l ID 09-10-96/ABC1 W ID A-123.456.XY C Cal.wt. +2000.02
13. Exit "Setup: Input"	[SETUP]	

Setting Parameters (Menu)

Purpose

To configure the scale; i.e., adapt the scale to individual requirements by choosing from a list of parameter options in a menu. You can block access to this menu by assigning a password.

Menu parameters not allowed for use in legal metrology will not be displayed on scales verified for legal metrology.

Features

The parameter options are divided into the following groups (1st menu level):

1 Scale functions

2 Application programs

3 Application parameters

4 +/– parameter (for over/under checkweighing)

5 Interface parameters

6 Print for weighing (print weights)

7 Print for application programs (print app. data)

8 Additional functions

9 Reset menu

Factory Settings

The factory-set configurations are marked with an "**o**" in the list starting on page 18.

Preparation

● Select the Setup menu: Press SETUP

> The *INFO*, *MENU* and *INPUT* soft keys are displayed in the text line

● Select the parameter menu: *MENU* soft key ⇆/[TOGGLE]

> Password prompt is displayed

● Enter password using the alphanumeric input keys

● Confirm password entered: *ENTER PASSW.* soft key F/[FUNCTION]

> Measured value line: 1 (1st menu level)

> Text line: *SCALE FUNCTIONS*

○ Select the next group: Press ^

○ Select the next submenu within a group (2nd menu level): Press >

○ Select previous group: Press v

○ Return to next higher menu level: Press <

Additional Functions

● Exit the menu: Press SETUP

> Restart the application

● Print parameter settings:

– When the 3rd menu level is selected: Press ⊙/[PRINT]

> Printout (example)

```
4   2 Auto print +/-
    2  Off
```

– When the 2nd menu level is selected: Press ⊙/[PRINT]

> Printout (example)

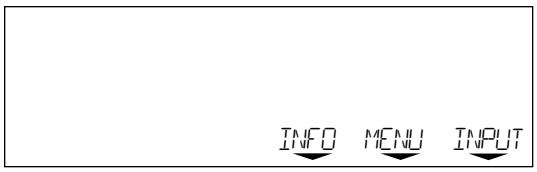
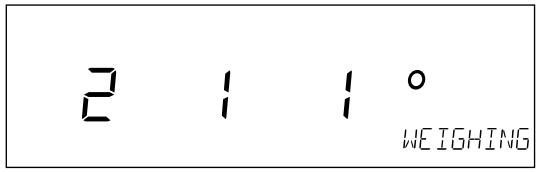
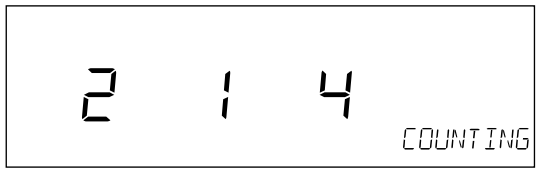
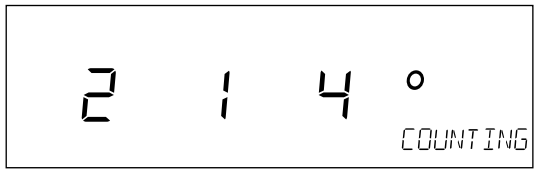
```
4 Parameter +/-
------------------
4   2 Auto print +/-
    2  Off
4   3 +/- ctrl ports
    1  Within ctrl r
```

– When the 1st menu level is displayed: Press ⊙/[PRINT]

> Prints all of the menu parameters that are currently set

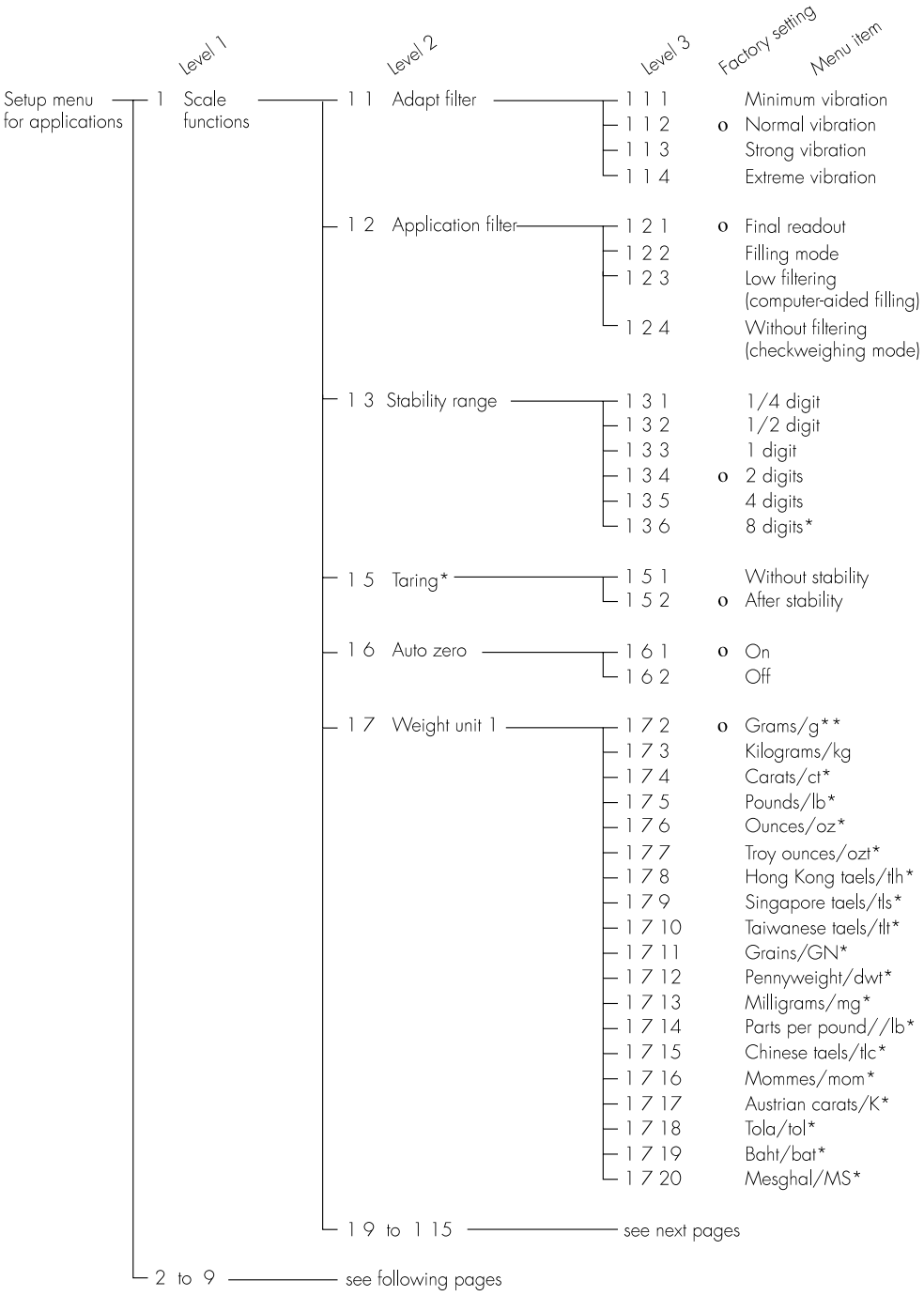
Practical Example

Select the Counting Application Program

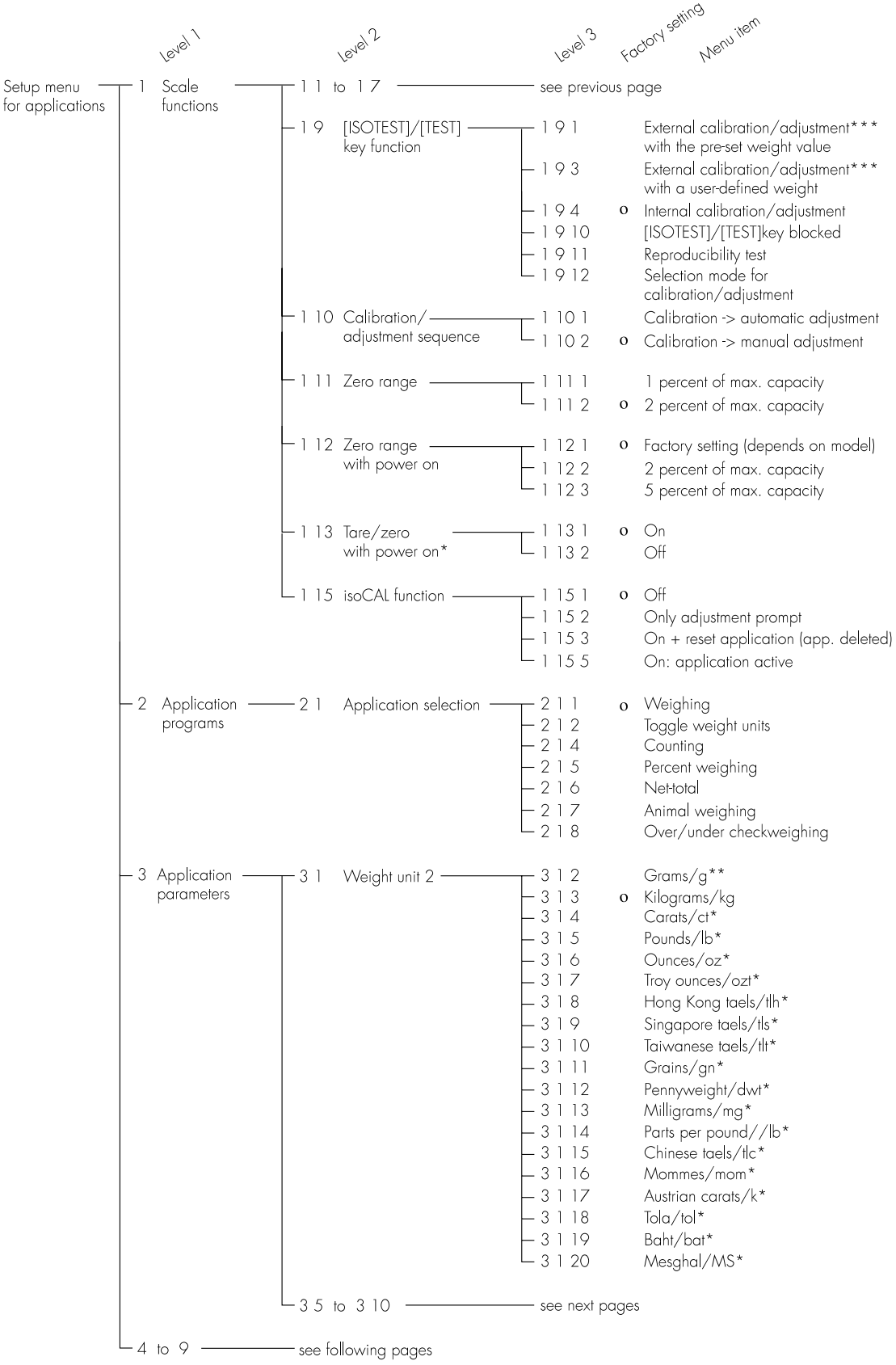
Step	Key (or instruction)	Display/Output
1. Select Setup menu	SETUP	
2. Select Scale Functions group code (Menu)	*MENU* soft key ⇆/[TOGGLE]	
3. Select the Application Prog. group	^	
4. Confirm Application Program (2nd menu level)	>	
5. Confirm App. Selection (3rd menu level shows current setting; in this case: weighing)	>	
6. Select the Counting program	^ ^	
7. Confirm selection of Counting program	>	
8. Set other parameters, if desired	< v ^ >	
9. Save settings and exit menu	SETUP	

Setup Parameters (Overview)

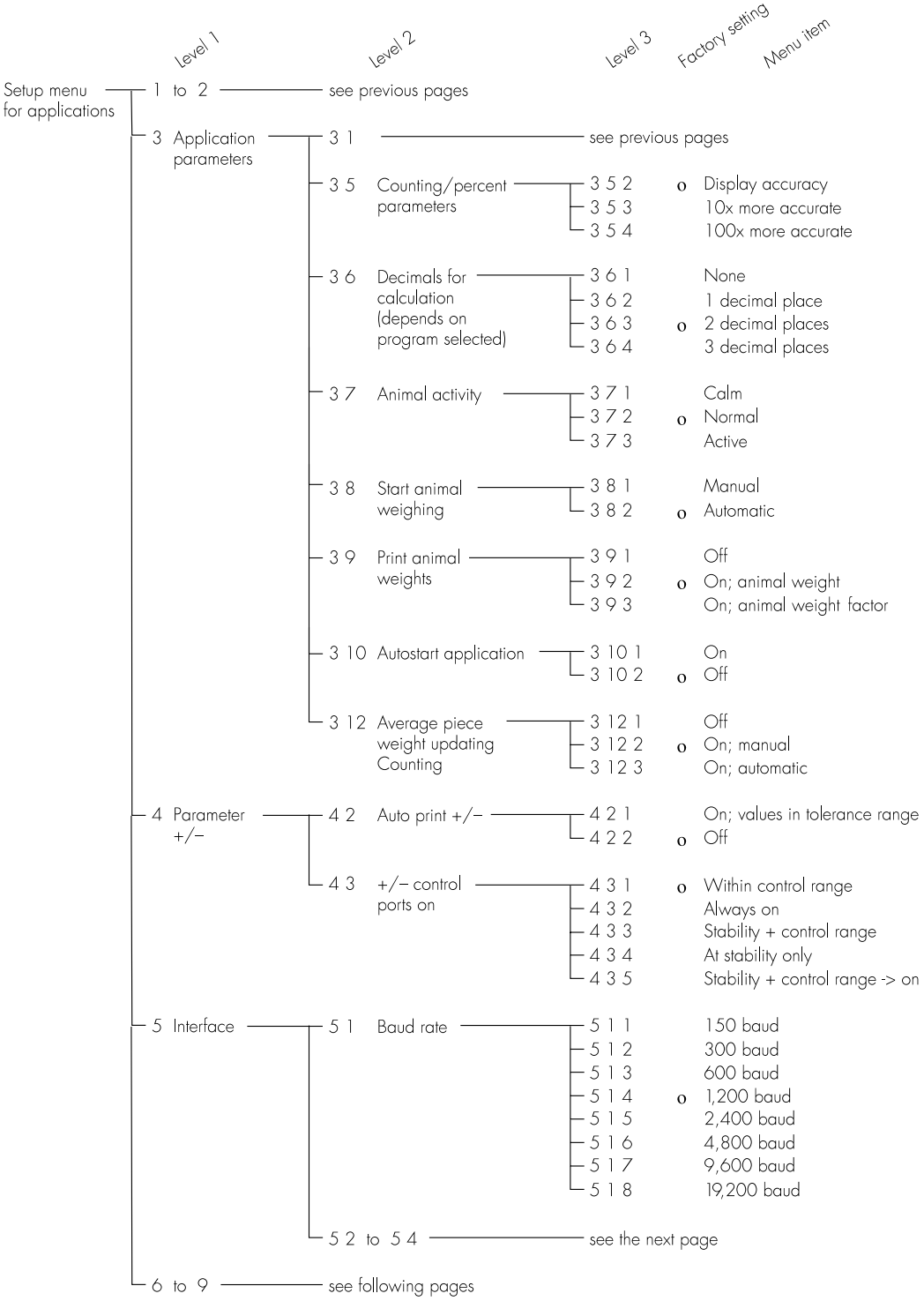
o Factory setting
√ User setting

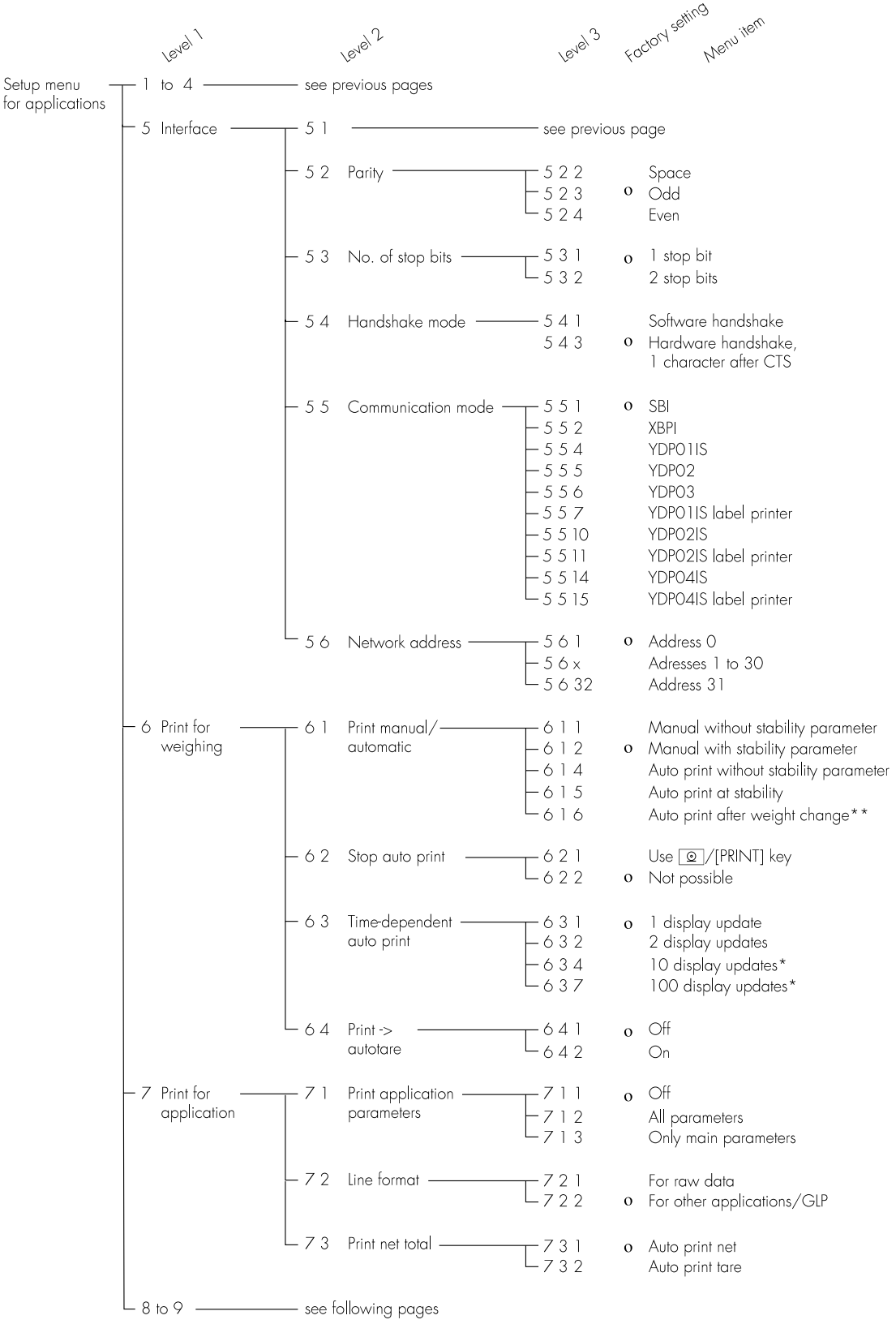


* = setting not applicable in scales verified for use in legal metrology
** = not applicable to model FBG64EDE-S0CE

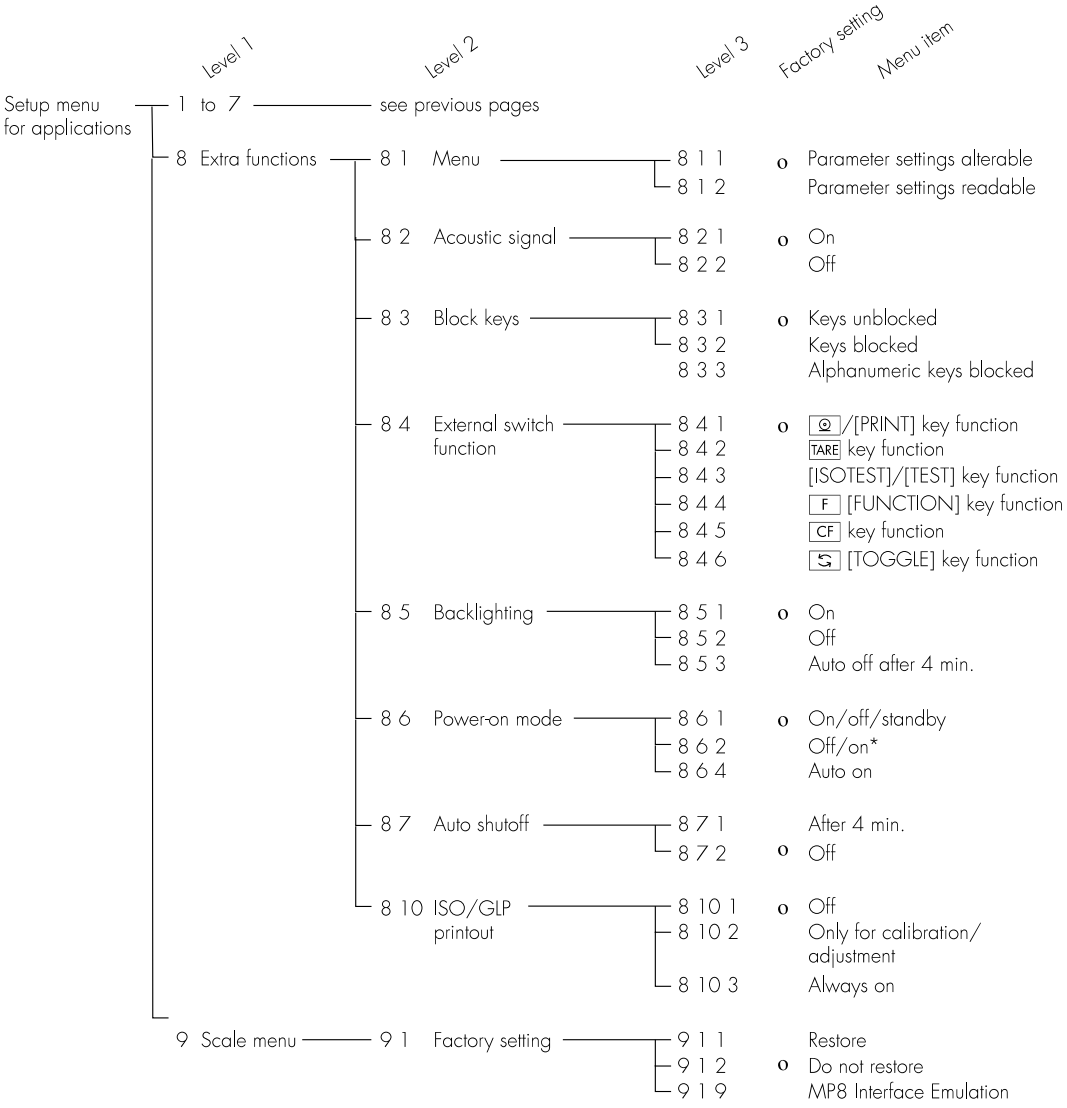


* = setting not applicable in scales verified for use in legal metrology
** = not in scale model FBG64EDE-S0CE
*** = for scales verified for legal metrology in the EU, only calibration (not adjustment) can be performed with a user-defined weight


Level 1
Level 2
Level 3
Factory setting
Menu item
Setup menu for applications
1 to 2
see previous pages
3 Application parameters
3 1
see previous pages
3 5 Counting/percent parameters
3 5 2 o Display accuracy
3 5 3 10x more accurate
3 5 4 100x more accurate
3 6 Decimals for calculation (depends on program selected)
3 6 1 None
3 6 2 1 decimal place
3 6 3 o 2 decimal places
3 6 4 3 decimal places
3 7 Animal activity
3 7 1 Calm
3 7 2 o Normal
3 7 3 Active
3 8 Start animal weighing
3 8 1 Manual
3 8 2 o Automatic
3 9 Print animal weights
3 9 1 Off
3 9 2 o On; animal weight
3 9 3 On; animal weight factor
3 10 Autostart application
3 10 1 On
3 10 2 o Off
3 12 Average piece weight updating Counting
3 12 1 Off
3 12 2 o On; manual
3 12 3 On; automatic
4 Parameter +/–
4 2 Auto print +/–
4 2 1 On; values in tolerance range
4 2 2 o Off
4 3 +/– control ports on
4 3 1 o Within control range
4 3 2 Always on
4 3 3 Stability + control range
4 3 4 At stability only
4 3 5 Stability + control range -> on
5 Interface
5 1 Baud rate
5 1 1 150 baud
5 1 2 300 baud
5 1 3 600 baud
5 1 4 o 1,200 baud
5 1 5 2,400 baud
5 1 6 4,800 baud
5 1 7 9,600 baud
5 1 8 19,200 baud
5 2 to 5 4
see the next page
6 to 9
see following pages


Level 1
Level 2
Level 3
Factory setting
Menu item
Setup menu for applications
1 to 4
see previous pages
5 Interface
5 1
see previous page
5 2 Parity
5 2 2 Space
o 5 2 3 Odd
5 2 4 Even
5 3 No. of stop bits
o 5 3 1 1 stop bit
5 3 2 2 stop bits
5 4 Handshake mode
5 4 1 Software handshake
o 5 4 3 Hardware handshake, 1 character after CTS
5 5 Communication mode
o 5 5 1 SBI
5 5 2 XBPI
5 5 4 YDP01IS
5 5 5 YDP02
5 5 6 YDP03
5 5 7 YDP01IS label printer
5 5 10 YDP02IS
5 5 11 YDP02IS label printer
5 5 14 YDP04IS
5 5 15 YDP04IS label printer
5 6 Network address
o 5 6 1 Address 0
5 6 x Adresses 1 to 30
5 6 32 Address 31
6 Print for weighing
6 1 Print manual/automatic
6 1 1 Manual without stability parameter
o 6 1 2 Manual with stability parameter
6 1 4 Auto print without stability parameter
6 1 5 Auto print at stability
6 1 6 Auto print after weight change**
6 2 Stop auto print
6 2 1 Use [PRINT] key
o 6 2 2 Not possible
6 3 Time-dependent auto print
o 6 3 1 1 display update
6 3 2 2 display updates
6 3 4 10 display updates*
6 3 7 100 display updates*
6 4 Print -> autotare
o 6 4 1 Off
6 4 2 On
7 Print for application
7 1 Print application parameters
o 7 1 1 Off
7 1 2 All parameters
7 1 3 Only main parameters
7 2 Line format
7 2 1 For raw data
o 7 2 2 For other applications/GLP
7 3 Print net total
o 7 3 1 Auto print net
7 3 2 Auto print tare
8 to 9
see following pages

* = setting not applicable in scales verified for use in legal metrology
** = Auto print if change in weight > 10 d and has stable readout; function enabled when load < 5 d


Level 1
Level 2
Level 3
Factory setting
Menu item
Setup menu for applications
1 to 7
see previous pages
8 Extra functions
8 1 Menu
8 1 1 o Parameter settings alterable
8 1 2 Parameter settings readable
8 2 Acoustic signal
8 2 1 o On
8 2 2 Off
8 3 Block keys
8 3 1 o Keys unblocked
8 3 2 Keys blocked
8 3 3 Alphanumeric keys blocked
8 4 External switch function
8 4 1 o Ω/[PRINT] key function
8 4 2 TARE key function
8 4 3 [ISOTEST]/[TEST] key function
8 4 4 F [FUNCTION] key function
8 4 5 CF key function
8 4 6 [TOGGLE] key function
8 5 Backlighting
8 5 1 o On
8 5 2 Off
8 5 3 Auto off after 4 min.
8 6 Power-on mode
8 6 1 o On/off/standby
8 6 2 Off/on*
8 6 4 Auto on
8 7 Auto shutoff
8 7 1 After 4 min.
8 7 2 o Off
8 10 ISO/GLP printout
8 10 1 o Off
8 10 2 Only for calibration/ adjustment
8 10 3 Always on
9 Scale menu
9 1 Factory setting
9 1 1 Restore
9 1 2 o Do not restore
9 1 9 MP8 Interface Emulation

* = not in scale models FB...EDE

Operating the Scale

Basic Weighing Function

Purpose

The basic weighing function is always accessible and can be used alone or in combination with an application program (Toggle between Weight Units, Counting, Weighing in Percent, etc.).

Features

– Taring the scale
– Assigning IDs to weights
– Printing weights
– Printing ID codes for weights

Factory Settings

Tare: After stability (152)

Print manual/automatic:
Manual after stability (612)

Line format for printout:
For other applications/GLP (722)

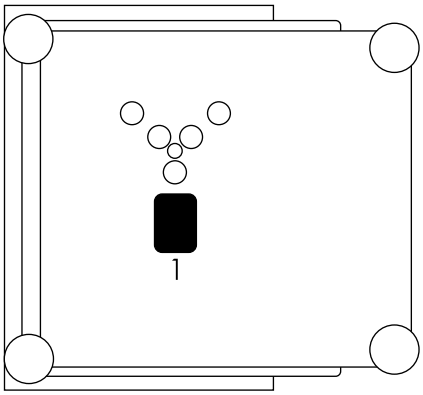
Alphanumeric input of a weight ID:
Keys unblocked (831)

Under-Scale Weighing

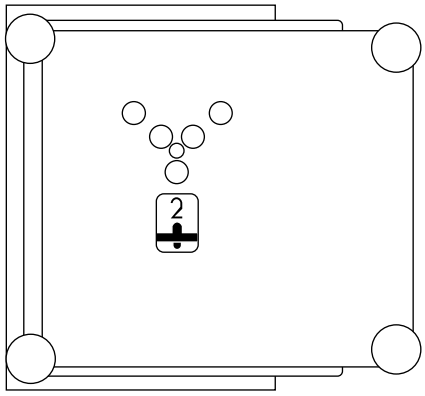
A port for a under-scale weighing hanger is located on the bottom of the scale.

FB… BBE, FB… CCE:

● Open cover plate **(1)** on the bottom of the scale

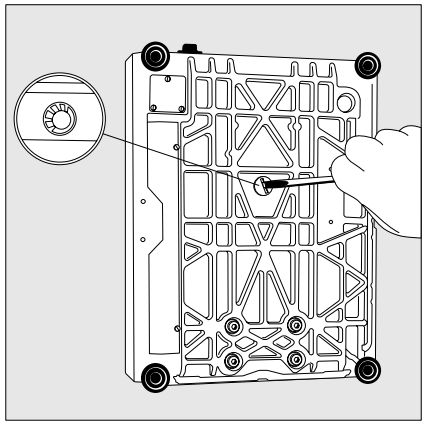


● Attach the sample (e.g., using a suspension wire) to the hook **(2)**.



FBG… EDE:

● Use a suitable screwdriver to remove the cover plate from the bottom of the scale.



● Fasten the hook to the cross (see "Accessories").

○ If necessary, install a shield for protection against drafts

Important Note Concerning Verified Scales Approved for Use as Legal Measuring Instruments in the EU*:

The under-scale weighing port may not be opened or used when an approved scale is being operated as a legal measuring instrument.

* including the Signatories of the Agreement on the European Economic Area

Preparation

● Turn on the scale:
Press [I/⏻]/[ON/OFF]

> All display segments light up briefly

○ To change configurations:
see the chapter entitled "Configuring the Scale"

○ To load factory-set configurations:
see "Configuring the Scale," parameter 91

○ To tare the scale: Press [TARE]

> The →0← symbol is displayed when the scale is zeroed or tared (only on scales verified* for use in legal metrology; ±0,5 digit))

Using Verified Scales Approved for Use as Legal Measuring Instruments in the EU*:

The type-approval certificate for verification applies only to non-automatic weighing instruments; for automatic operation with or without auxiliary measuring devices, you must comply with the regulations of your country applicable to the place of installation of your scale.

● **You must calibrate the scale at the place of installation before using it as a legal measuring instrument** (see the section entitled "Calibration/ Adjustment" in this chapter)

○ The temperature range indicated on the verification ID label must not be exceeded during operation

ID for weight value (if desired):

- Select the parameters "Line format" and "For other app./GLP/GMP" from the Setup menu: Press SETUP
- Select mode: Press the *MENU* soft key
- Set parameter 122: see the chapter entitled "Configuring the Scale"
- Exit the Setup menu: Press SETUP

Additional Functions

In addition to the functions:

– alphanumeric input,

– taring (not during alphanumeric input),

– printing,

you can also access the following functions from the weighing application:

– calibration (not for alphanumeric input),

– setup,

– turning off the scale.

Calibration

- Press [ISOTEST]/[TEST]

> See the section on "Calibration/ Adjustment" for further instructions.

Setup Menu

- Press SETUP

> See the chapter entitled "Configuring the Scale" for further instructions.

Turning Off the Scale

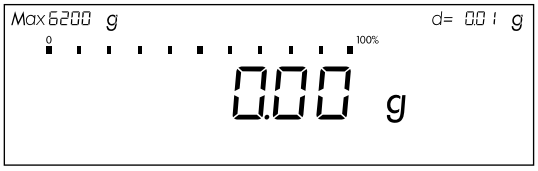
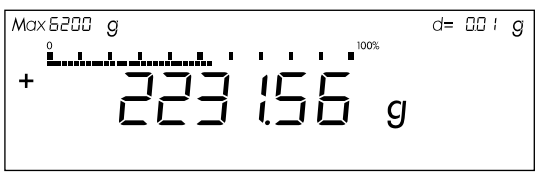
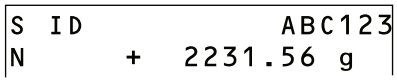
- Press I/⏻/[ON/OFF]

> The scale shuts off

> The display goes blank

Practical Examples

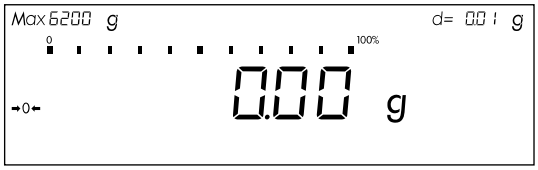
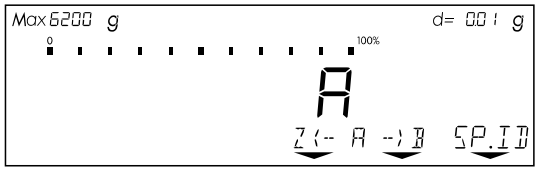
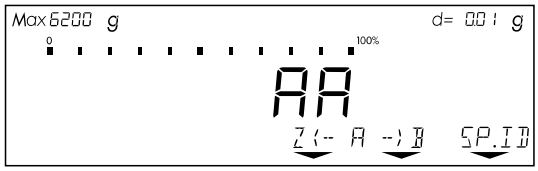
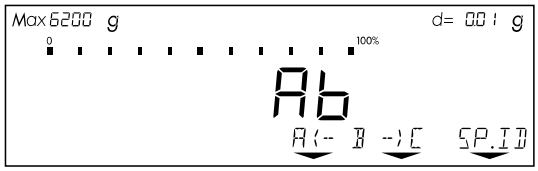
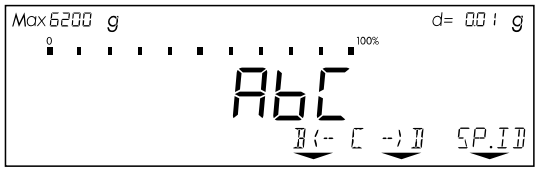
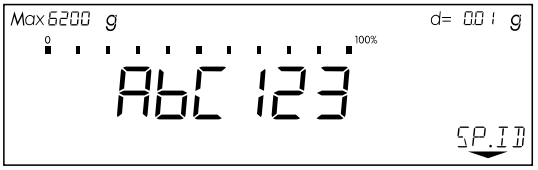
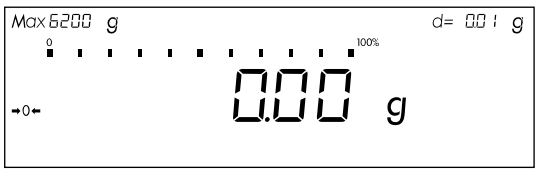
Example W1: Simple Weighing

Step	Key (or instruction)	Display/Output
1. If necessary, tare the scale (→0← symbol: scale is tared, – verified scales only)	TARE	
2. Enter sample ID	see Example W2	
3. Determine sample weight (Example)	Place sample on scale	
4. Print weight	⎙/[PRINT]	

Example W2

Enter "ABC123" as a weight ID

Note:
– The sample ID generally applies to one weighing operation only
– The ID is deleted after data output

Step	Key (or instruction)	Display/Output
Initial status (scale unloaded) (ID can also be entered while scale is loaded)		
1. Enter the letter "A"	ABC	
2. Select and enter the letter "B"	ABC	
	Softkey B (Key ^)	
3. Select and enter the letter "C"	ABC Softkey . . (Key ^ ^)	
4. Enter the numbers "1," "2" and "3"	1 2 3	
5. Store the ID (max. 20 characters)	Press the SP.ID soft key F /[FUNCTION]	

– The next printout will include this ID

Calibration/Adjustment "isoTEST"

Purpose

Calibration is the determination of the difference between the weight readout and the true weight (mass) of a sample. Calibration does not entail making any changes within the scale.

Adjustment is the correction of this difference between the measured value displayed and the true weight (mass) of the sample, or the reduction the difference to an allowable level within the maximum permissible error limits.

Using Verified Scales as Legal Measuring Instruments in the EU*:

Before using your scale as a legal measuring instrument, you must perform "internal calibration" at the place of installation after the warmup period.

* including the Signatories of the Agreement on the European Economic Area

Available Features

Your scale can be calibrated externally (menu item 191 or 193) or internally (194).

External calibration can be performed

– with the pre-set weight value (191), or
– with a user-defined weight value (193)

Adjustment can be performed
– automatically following calibration (1101); or
– if desired, the adjustment operation can be started manually after calibration (1102)

You can also configure whether the calibration mode
– will be activated according to the specific setting (by setting 191, 193 or 194), or
– can be selected by the user after pressing the [ISOTEST]/[TEST] key (1912).

You can have the scale automatically display an adjustment prompt after a certain time interval has elapsed since the last calibration/adjustment or when the ambient temperature changes by a defined amount.

You can also configure the scale to perform calibration and adjustment automatically (isoCAL) when the pre-set time and/or temperature limit is reached (1153 and 1155).

You can have the calibration/adjustment results documented in an ISO/GMP-compliant printout.

> For the maximum values required to start calibration/adjustment when you use a preload or a conveyor system, refer to the section "Overview – Specifications".

For service technicians only:

External Calibration for Scales Verified for Legal Metrology in the EU*

– External calibration is blocked when the scale is used in legal metrology

> External calibration is possible only after you have removed the verification control seal, in which case the validity of the verification becomes void and the scale must be re-verified

– External calibration can now be performed

Factory Settings

Calibration/adjustment mode: Internal calibration/adjustment (194)

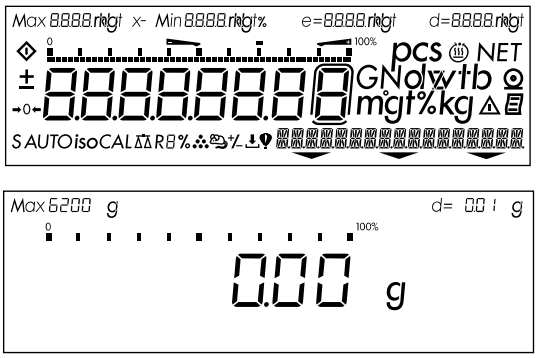
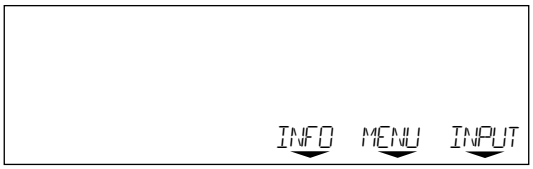
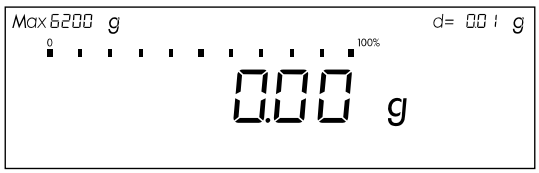
Calibration/adjustment sequence: Calibration; adjustment, if necessary (isoCAL function): (1102)

Automatic initiation of calibration/adjustment (isoCAL function): Off (1151)

ISO/GMP printout: off (8101)

Preparation

Configure Parameters for Calibration and Adjustment

Step	Key (or instruction)	Display/Output
1. Turn on the scale	[I/⏻]/[ON/OFF]	
2. Select the Setup menu	[SETUP]	
3. Select the Balance Functions menu	*MENU* soft key [⇆]/[TOGGLE]	
4. Set parameters for: – Calibration key function *19* – Calibration/adjustment sequence *110* – isoCAL self-calibrating and adjustment function *115* See the chapter entitled "Setup"	[<] [v] [^] [>]	
5. Exit the Setup menu	[SETUP]	

Internal Calibration/Adjustment

The menu code setting 194 must be selected in the Setup menu.

Inside the scale housing is a built-in, motorized calibration weight.

The internal calibration/adjustment sequence is as follows:

- Select the calibration function: Press [ISOTEST]/[TEST]

> The internal calibration weight is applied automatically

> The scale is calibrated

> If the setting for "Calibration automatically followed by adjustment" (1 10 1) has been selected in the Setup menu, the scale will now be automatically adjusted

> The internal calibration weight is removed

Calibration and Adjustment Sequence

In the Setup menu, you can configure the scale so that:

– calibration is always followed automatically by adjustment (CAL.-> AUTO ADJUST. 1 10 1), or

– you have the choice of ending the sequence or starting adjustment after calibration (CAL.-> MAN. ADJUST. 1 10 2).

If no deviation is determined during calibration, or the deviation is within the tolerance limits dictated by the degree of accuracy you require, it is not necessary to adjust the scale. In this case, you can end the calibration/adjustment sequence after calibration. There are 2 soft keys active at this point:

– EXT. ADJUST or INT. ADJUST to start adjustment

– END to end the sequence

Selecting the Calibration/ Adjustment Parameter

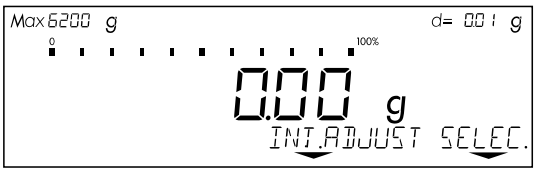
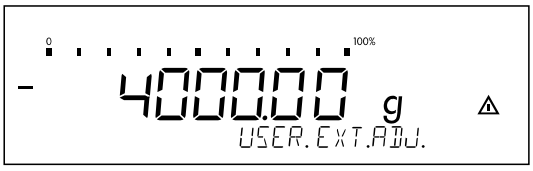
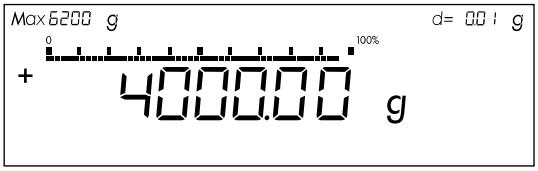
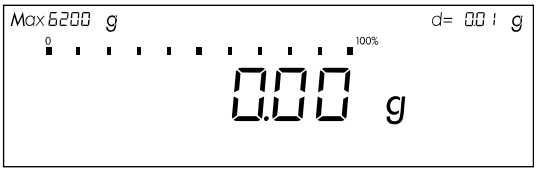
The setting 19 12 must be selected in the Setup menu.

You can configure the scale so that after selecting a calibration procedure by pressing the [ISOTEST]/[TEST] key, you can choose among the following calibration/adjustment modes:

- External calibration/adjustment with the pre-set weight value (DEF.EXT.ADJ.)
- External calibration with a user-defined weight value (USER.EXT.ADJ.)
- Internal calibration (INT.ADJUST)
- Reproducibility test (REPROTEST)

When making your selection, the available modes are displayed in cycles; i.e., after REPROTEST, DEF.EXT.ADJ. is displayed again

Configure External Calibration and Automatic Adjustment of the Scale in Selection Mode

Step	Key (or instruction)	Display/Output
1. Select the calibration function	[ISOTEST]/[TEST]	
2. Select external calibration/ adjustment mode (for scales verified for legal metrology in the EU, only "external adjustment" is possible)	Press the SELEC. soft key three times F /[FUNCTION]	
3. Confirm external calibration/ adjustment mode	Press the USER.EXT.ADJ. soft key CAL [ISOTEST]/[TEST]	
4. Place the calibration weight on the scale (e.g., 4000.00 g) Minus sign –: Weight too low Plus sign +: Weight too high No plus/minus sign: Weight o.k.	Place weight on scale	
This is displayed after calibration: (on verified scales, the display shows the difference between the weight readout and the actual weight value)		
This is displayed after adjustment:		
5. Unload the scale	Remove weight(s)	

External Calibration/Adjustment* with a User-Defined Weight

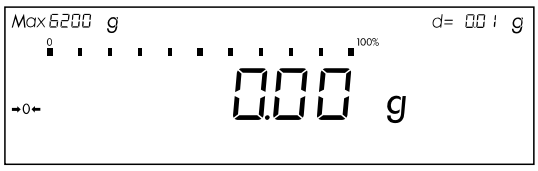
First set either *193* or selection mode (*19 12*) in the menu.

You can define a weight for calibration/adjustment. External calibration/adjustment must be performed with weights that are traceable to a national standard and that have error limits which are at least 1/3 of the required tolerance of the display accuracy.

The scale has a factory-set weight value (see "Specifications").

To reset a user-defined calibration/adjustment weight to the original factory setting, enter the factory-set weight valve manually (see "Specifications") or set menu code *191* in the Setup menu.

Define the Calibration Weight

Step	Key (or instruction)	Display/Output
1. Select the Setup menu	SETUP	
2. Access the Input Mode	*INPUT* soft key F/[FUNCTION]	
3. Select input for calibration weight (currently 3000.00 g)	^ ^ ^	
4. Enter calibration weight (e.g., 4000.00 g)	4 0 0 0 · 0 0	
5. Save weight	... *WEIGHT* soft key F/[FUNCTION]	
6. Exit the Setup menu	SETUP	

* = for scales verified for legal metrology in the EU, only external calibration is possible

isoCAL:
Automatic Calibration and Adjustment

Either 1 15 3 or 1 15 5 must be selected in the Setup menu.

The "isoCAL" display automatically begins flashing if the ambient temperature has changed in relation to the temperature at the time of the last calibration/adjustment, or after a defined time interval has elapsed. The scale is telling you that it wants to self-calibrate and adjust.

This adjustment prompt is activated when:

- The change in temperature is greater than 10°C
- The scale status does not correspond to Setup configurations
- No number or letter input is active
- The load on the load plate has not been changed within the last 2 minutes
- The scale has not been operated within the last 2 minutes
- The weight on the load plate may not exceed 2% of the maximum scale capacity

When these requirements are met, the following symbols are displayed:

- C in the measured value line
- *isoCAL* in the symbol display
- ⚠ in the weight unit display

If the scale is not operated and the load is not changed, internal calibration and adjustment starts after 15 seconds have elapsed.

In the Setup menu, you can configure the scale so that after calibration and adjustment

- the application program must be restarted (ON + RESET APP.. 1 15 3), or
- the application program resumes where it left off (ISOCAL ON. 1 15 5)

In the Setup menu, you can also configure the scale so that it displays an adjustment prompt, but does not perform the calibration and adjustment functions automatically (ONLY ADJ. PROMPT. 1 15 2)

Determination of the Reproducibility (reproTEST)

Definition

Reproducibility is the ability of the scale to display identical readouts when it is loaded several times with the same weight under constant ambient conditions. The standard deviation for a given number of measurements is used to quantify the reproducibility.

Purpose

The "reproTEST" function automatically calculates the reproducibility of results (based on 6 individual measurements). In this way, the scale determines one of the most important quantities in relation to the place of installation. The results are displayed with the scale's accuracy.

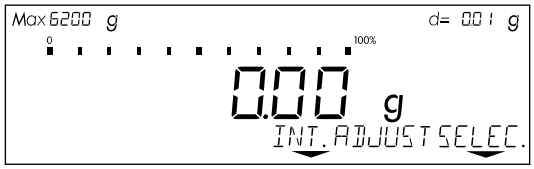
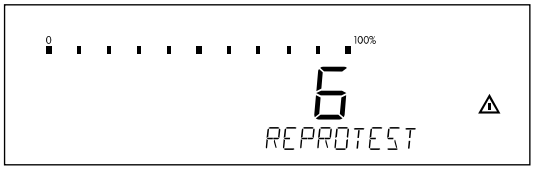
Preparation

- Turn on the scale: Press [I/⏻]/[ON/OFF]

> All display segments light up briefly

- Select reproTEST in the Setup menu: Press [SETUP]
- Select Menu: Press [⇆]/[TOGGLE] (*MENU* softkey)
- Select either *19 11* (reproTEST) or *19 12* (selection mode): See "Configuring the Scale."
- Exit the Setup menu: Press [SETUP]

Check the Reproducibility of the Scale

Step	Key (or instruction)	Display/Output
1. If parameter *19 11* is set (reproTEST), proceed with step 4		
2. Access the Selection Mode for calibration/adjustment	[ISOTEST]/[TEST]	
3. Select reproTEST	*SELEC.* soft key [F]/[FUNCTION]	
4. Start reproTEST Number of measurements is displayed 6 measurements will now be performed	[ISOTEST]/[TEST]	
The standard deviation is displayed		
5. End reproTEST or restart reproTEST	*END* soft key [F]/[FUNCTION] *REPROTEST* soft key	

Application Programs

Using Verified Scales as Legal Measuring Instruments in the EU*:

All application programs can be selected on scales verified as legal measuring instruments. Calculated values can be indicated as follows:

Percent = %

Piece count (counting) = pcs

Additional computed value = o, ⚠

Toggle between Weight Units

Purpose

With this application program, you can have weight values calculated by pressing a soft key.

Available Features

– Toggling the unit

– Other features, as for the basic weighing function

Factory Settings

Weight unit 1:
Grams/g (172)

Weight unit 2:
Kilograms/g (313)

* = including the Signatories of the Agreement on the European Economic Area

** = not applicable in scales verified for use in legal metrology

Preparation

The following weight units are available in both ranges:

Unit	Conversion factor	Display	Printout
Grams	1.00000000000	g	g
Kilograms	0.00100000000	kg	kg
Carats**	5.00000000000	ct	ct
Pounds**	0.00220462260	lb	lb
Ounces**	0.03527396200	oz	oz
Troy ounces**	0.03215074700	ozt	ozt
Hong Kong taels**	0.02671725000	tl	tlh
Singapore taels**	0.02645544638	tl	tls
Taiwanese taels**	0.02666666000	tl	tlt
Grains**	15.43235835000	GN	GN
Pennyweights**	0.64301493100	dwt	dwt
Milligrams**	1000.00000000000	mg	mg
Parts per pound**	1.12876677120	o	/lb
Chinese taels**	0.02645547175	tl	tlc
Mommes**	0.26670000000	o	mom
Austrian carats**	5.00000000000	o	K
Tola**	0.08573333810	o	tol
Baht**	0.06578947436	o	bat
Mesghal**	0.21700000000	o	MS

- Turn on the scale: Press [I/⏻]/[ON/OFF]

> All segments of the display light up briefly

- Configure the "Toggle between Weight Units" application in the Setup menu: Press [SETUP]
- Select the configuration mode: Press [⇆]/[TOGGLE] (*MENU* soft key)
- Set the parameter 212: See the chapter entitled "Configuring the Scale"
- Exit the Setup menu: Press [SETUP]

Setting Weight Unit 1

- Access the Setup menu: select *MENU*
- Set the parameter for weight unit 1 (172 through 17 20): See "Configuring the Scale"

Setting Weight Unit 2

○ Access Setup: select *MENU*

- Set the parameter for weight unit 2 (312 through 3 1 20): See "Configuring the Scale"
- Exit the Setup menu: Press [SETUP]

Additional Functions

In addition to the functions for:

- alphanumeric input,
- taring
  (not during alphanumeric input),
- printing,

you can also access the following functions from this application:

- calibration
  (not for alphanumeric input),
- setup,
- turning off the scale

Calibration/Adjustment

- Press [ISOTEST]/[TEST]

> See "Calibration/Adjustment" for further instructions

Setup (setting parameters)

- Press [SETUP]

> See "Configuring the Scale" for further instructions

Turning Off the Scale

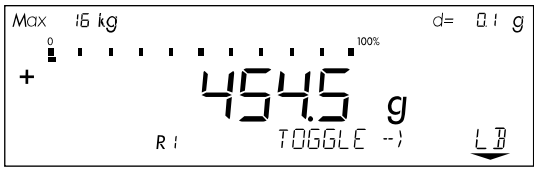
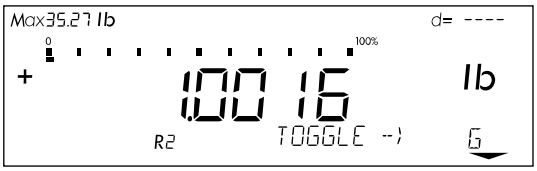
- Press [I/⏻]/[ON/OFF]

> The balance shuts off

> The display goes blank

Practical Example

Toggle the Display From Grams [g] (1st Unit) to Pound [lb] (2nd Unit)

Step	Key (or instruction)	Display/Output
(R 1: weight unit 1)		
1. Toggle to Pound [lb] (R2: weight unit 2)	LB soft key [F]/[FUNCTION]	
2. Toggle to grams [g]	G soft key [F]/[FUNCTION]	

Counting ⁂

Purpose

With the Counting program you can determine the number of parts that each have approximately equal weight.

Available Features

- Reference sample quantity "nRef" loaded from long-term memory when you turn on the scale
- Optional scale configuration in the Setup menu for automatically initializing this application and loading the most recent reference sample quantity "nRef" and average piece weight "wRef" when you turn on the scale (automatic initialization; menu code 3 10 1)
- Minimum load checked when the scale is initialized (factory setting: 10 display increments; can only be changed by the Sartorius FastFactory)
- Reference sample quantity "nRef" entered using the keys
- Average piece weight "wRef" entered using the keys
- Storage parameter (level of accuracy with which the average piece weight "wRef" is stored) for piece count calculation can be configured
- Optional configuration for having the piece count and average piece weight output automatically via the data interface port after initialization or reference sample updating while running the Counting program (print application parameters)
- Long-term storage of the last reference sample quantity "nRef" entered
- Long-term storage of the last average piece weight "wRef" entered with the corresponding reference sample quantity "nRef," by configuring automatic initialization
- Toggling between two weight units by pressing ⇆/[TOGGLE]
- Counting program initialized again after using the scale for weighing (after initialization)

Factory Settings

Counting with average piece weight updating: On; manual (3 12 2)

Auto-start application (automatic initialization with reference sample quantity and average piece weight loaded from long-term memory): off (3 10 2)

Counting/percent parameter (accuracy when storing average piece weights): display accuracy (3 5 2)

Printout application parameters (automatic output of application parameters): off (7 1 1)

Preparation

To calculate a piece count, the average weight of one piece must be known. This average piece weight can be entered into the Counting program in one of three ways:

– The last reference sample quantity entered is loaded and displayed when you turn on the scale. Place the same number of parts on the scale and initialize the Counting program;

– With the automatic initialization parameter on, the scale goes into the "Counting" mode when you turn it on and loads the last average piece weight and corresponding reference sample quantity that were entered or calculated;

– Enter the average piece weight using the numeric keys and store it.

Reference Sample Updating

When the *UPDAT* soft key is displayed during counting, this means you can have the average piece weight updated (while the piece count is displayed in the measured value line) provided that the manual or automatic mode has been selected in the Setup menu for reference sample updating.

The *UPDAT* soft key is displayed when:

– the scale has reached stability

– the current piece count is less than double the original piece count

– the current piece count is less than 100

– the internally calculated piece count (e.g., 17.24 pcs) differs from the nearest whole number (here: 17 pcs) by less than ±0.3

Reference sample updating can be repeated several times with an approximately doubled piece count.

● To perform reference sample updating: Press [F]/[FUNCTION] (*UPDAT* soft key)

● Turn on the scale: Press [I/⏻]/[ON/OFF]

> All display segments light up briefly

● Select the Counting program in the Setup menu: Press [SETUP]

● Select menu: Press the *MENU* soft key ([⇆]/[TOGGLE])

● Set parameter *2 14*: See "Configuring the Scale"

● Exit the Setup menu: Press [SETUP]

Setting Parameters for the Counting Application

● Access the Setup menu: Select *MENU*

● Set parameters for:

– Storage accuracy: *3 5 COUNT/PCT. PARAM.*

– Automatic initialization: *3 10 AUTO-START APP.*

– Average piece weight updating: *3 12 AVERAGE PIECE WEIGHT UPDATING*

– Automatic output of parameters to interface port: *7 1 PRINT APP. PARAM.*

See "Configuring the Scale"

● Exit the Setup menu: Press [SETUP]

Additional Functions

In addition to the functions for:

– alphanumeric input,

– taring (not during alphanumeric input),

– printing,

you can also access the following functions from this application:

– calibration (not during alphanumeric input),

– setup,

– turning off the scale.

Calibration/Adjustment

● Press [ISOTEST]/[TEST]

> See "Calibration/Adjustment" for further instructions

Setup (setting parameters)

● Press [SETUP]

> See "Configuring the Scale" for further instructions

Turning Off the Scale

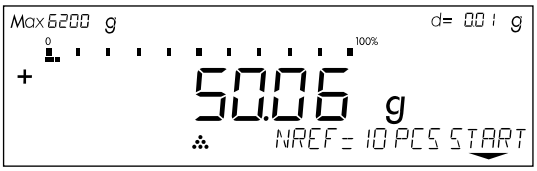
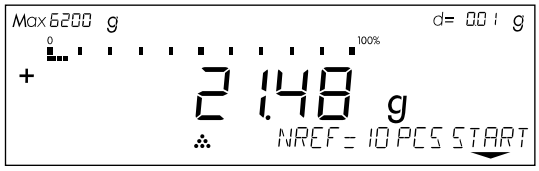
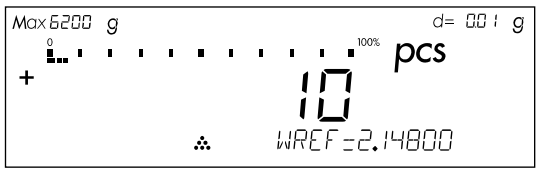
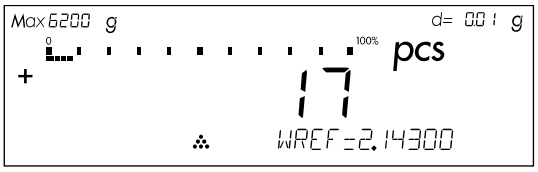
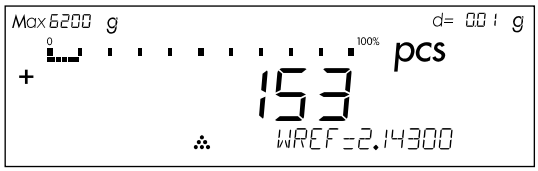
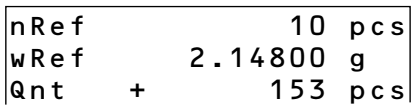
● Press [I/⏻]/[ON/OFF]

> The scale shuts off

> The display goes blank

Practical Example

Counting with: Preset Reference Sample Quantity Weighed In
(Parameter settings: Counting program: 214; Print all parameters: 712)

Step	Key (or instruction)	Display/Output
1. Select the Counting application in the Setup menu	see "Preparation"	
2. Prepare a container for the parts	Place the empty container on the scale	
3. Tare the scale	TARE	
4. Place reference sample quantity on the scale (example: 10 pcs, each weighing 2.148 g)	Place the displayed number of parts in the container	
5. Initialize the scale (the number of digits following the decimal point depends on the scale model)	START soft key F /[FUNCTION]	
6. If necessary, increase number of parts and update the reference sample (here: 7 more pieces)	Place parts in container UPDAT soft key F /[FUNCTION]	
7. Weigh uncounted parts	Place parts to be counted in container	
8. If desired, print total piece count (here: 153 pcs)	/[PRINT]	

Weighing-in-Percent %

Purpose

This application program allows you to obtain weight readouts in percent which are in proportion to a reference weight.

Available Features

- Reference percentage "pRef" loaded from long-term memory when you turn on the scale
- Optional scale configuration in the Setup menu for automatically initializing this application and loading the most recent reference percentage "pRef" entered with reference weight "w100%" when you turn on the scale
- Minimum load checked when the scale is initialized (factory setting: 10 display increments; can only be changed by the Sartorius FastFactory)
- Reference percentage "pRef" entered using the numeric keys
- Reference weight "Wxx%" entered using the numeric keys
- Storage parameter (rounding-off factor) for storing the reference weight "W100%" to calculate the percentage can be configured
- Configuration of decimal places displayed with a percentage
- Optional configuration for having the reference weight "Wxx%" and reference percentage automatically output via the data interface port after initialization of the weighing-in-percent program (print application parameters)
- Long-term storage of the last reference percentage "pRef" entered
- Long-term storage of the last reference weight "W100%" entered, by configuring automatic initialization (auto-start)
- Toggle between two weight units by pressing ⇆/[TOGGLE]

Factory Settings

Auto-start application (automatic initialization with reference percentage and reference weight loaded from long-term memory): off (3 10 2)

Counting/percent parameter (accuracy when storing reference weights): display accuracy (3 5 2)

Number of decimal places displayed in "weighing in percent" mode: 2 decimal places (3 6 3)

Printout application parameters (automatic output of application parameters): off 7 1 1)

Preparation

To calculate a value in percent, the reference percentage must be known. This value can be entered into the weighing-in-percent program in one of three ways:

– The last reference percentage entered is loaded and displayed when you turn on the scale. Place the corresponding weight on the scale and initialize the weighing-in-percent program;

– With automatic initialization switched on, the scale goes into the "weighing-in-percent" mode when you turn it on and loads the last reference percentage entered as well as the corresponding reference weight;

– Enter the reference weight using the numeric keys and store it (*W 100%* soft key).

● Turn on the scale:
Press [I/⏻]/[ON/OFF]

> All display segments light up briefly

● Select the Weighing-in-Percent application in the Setup menu:
Press [SETUP]

● Select menu:
Press the *MENU* soft key
([⇆]/[TOGGLE])

● Set parameter *2 15*:
See "Configuring the Scale"

● Exit the Setup menu:
Press [SETUP]

Setting Parameters for the Weighing-in-Percent Application

○ Access the Setup menu:
Select *MENU*

● Set parameters for:

– Storage accuracy:
35 COUNT/PCT.PARAM.

– Decimal places displayed:
36 DECIMALS F.CALC.

– Automatic initialization:
3 10 AUTO-START APP.

– Automatic output of parameters to interface port:
7 1 PRINT APP.PARAM.

See "Configuring the Scale"

● Exit the Setup menu:
Press [SETUP]

Additional Functions

In addition to functions for:

– alphanumeric input,

– taring
(not during alphanumeric input),

– printing,

you can also access the following functions from this application:

– calibration
(not during alphanumeric input),

– setup,

– turning off the scale.

Calibration/Adjustment

● Press [ISOTEST]/[TEST]

> See "Calibration/Adjustment" for further instructions

Setup (setting parameters)

● Press [SETUP]

> See "Configuring the Scale" for further instructions

Turning Off the Scale

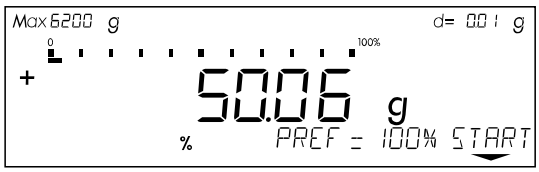
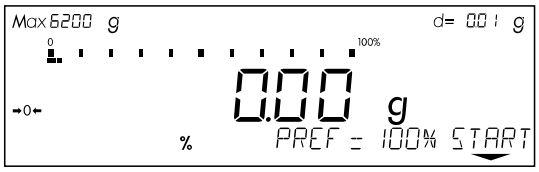
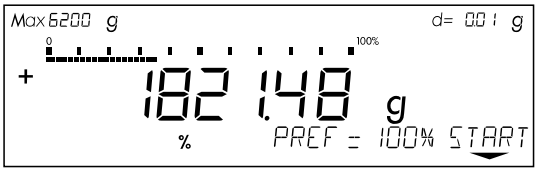
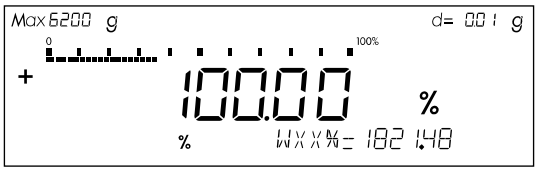
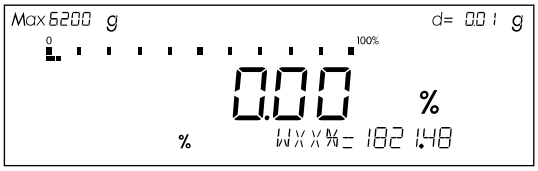
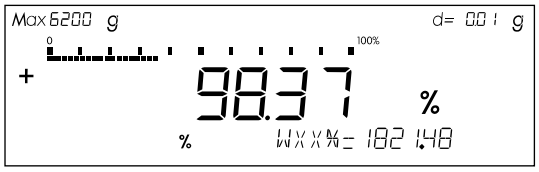
● Press [I/⏻]/[ON/OFF]

> The scale shuts off

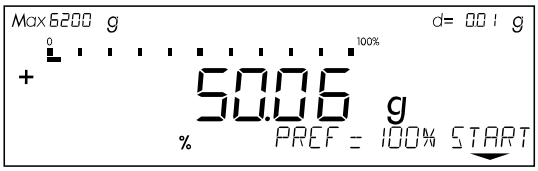
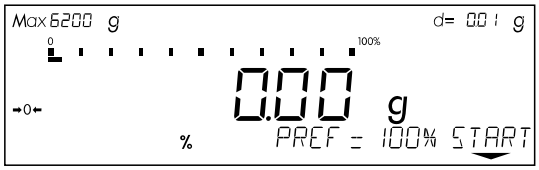
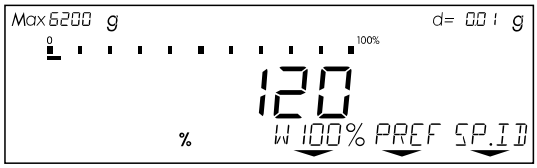
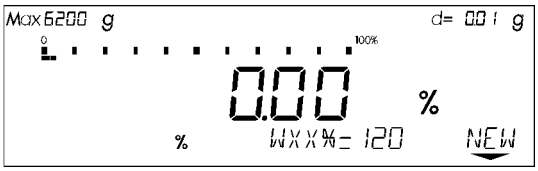
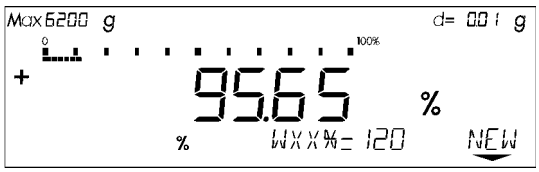
> The display goes blank

Practical Examples

Example P1: Weighing in Percent with Reference Weight Taken from Weight on Scale

Step	Key (or instruction)	Display/Output
1. Select the weighing-in-percent application in the Setup menu	see "Preparation"	
2. Prepare a container for the parts	Place the empty container on the scale	
3. Tare the scale	TARE	
4. Place the reference weight on the scale (here: 1821.48 g =100%)	Place weight equal to reference weight in the container	
5. Initialize the scale	START soft key F/[FUNCTION]	
6. Unload the scale	Remove reference weight from the container	
7. Determine the percentage of an unknown weight	Place sample to be measured in the container	
8. If desired, print percentage (here: 98.37%)	⊙/[PRINT]	pRef 100 % Wxx% 1821.48 g Prc + 98.37 %

Example P2: Weighing in Percent with Reference Weight Entered Using the Numeric Keys

Step	Key (or instruction)	Display/Output
1. Select the weighing-in-percent application in the Setup menu	see "Preparation"	
2. Prepare a container for the parts	Place the empty container on the scale	
3. Tare the scale	TARE	
4. Enter the reference weight using the numeric keys (here: 120 g)	1 2 0	
5. Store the reference weight	W 100% soft key [ISOTEST]/[TEST]	
6. Determine the percentage of an unknown weight	Place sample to be measured in the container (in this case: 114.78 g)	

Net-Total Formulation

Purpose

With this application program you can weigh in different components up to a defined total. You can also print out the total weight and the individual weights of the components.

Available Features

- Taring
- Weighing different components (maximum: 99 components) from "0" to a defined total component weight
- Storing component weights ("Store xx comp."), with
  - display zeroed after value stored, and
  - automatic printout (print application parameters); either
  - of the last component weight (net value) or
  - of the total weight (tare value)
- Display of the transaction counter "XXth" (referring in each case to the next component) in the soft key label display
- Clearing of the component memory when the weighing series is canceled [CF] and printout of the total weight if you have configured the scale for GMP-compliant printouts; otherwise, printout of the net value [⊙]/[PRINT]
- Toggling between component weight and total weight by pressing [⇆]/[TOGGLE]
- ISO/GLP-compliant printout of the total of the individual component weights (**Tot.cp**)

Factory Settings

Automatic printout when component value stored: print net total (73 1)

Preparation

- Turn on the scale

> All display segments light up briefly

- Select the Net Total application in the Setup menu: Press [SETUP]
- Select menu: Press the *MENU* soft key ([⇆]/[TOGGLE])
- Set parameter 2 16: See "Configuring the Scale"
- Exit the Setup menu: Press [SETUP]

Setting Parameters for the Net-Total Application

○ Access the Setup menu: Select *MENU*

- Set the parameter for automatic printout when components are stored

  73 *PRINT NET TOTAL*
  See "Configuring the Scale"

- Exit the Setup menu: Press [SETUP]

Additional Functions

In addition to functions for:

- alphanumeric input,
- taring (not during alphanumeric input),
- printing,

you can also access the following functions from this application:

- calibration (not during alphanumeric input),
- setup,
- turning off the scale.

Calibration/Adjustment

- Press [ISOTEST]/[TEST]

> See "Calibration/Adjustment" for further instructions

Setup (setting parameters)

- Press [SETUP]

> See "Configuring the Scale" for further instructions

Turning Off the Scale

- Press [I/⏻]/[ON/OFF]

> The scale shuts off

> The display goes blank

Practical Example

Weighing in Several Components
(Parameter setting: Net-total application program 216; print all parameters 712)

Step	Key (or instruction)	Display/Output
1. Select the net-total application in the Setup menu	see "Preparation"	
2. Prepare a container for the components	Place the empty container on the scale	
3. Tare the scale	TARE	
4. Add first component	Place the first component in the container	
5. Store component value	1.COMP soft key F/[FUNCTION]	Comp1 + 952.48 g
6. Add next component	Place next component in the container	
7. Store component value	2.COMP soft key F/[FUNCTION]	Comp1 + 952.48 g Comp2 + 2837.12 g
8. If desired, add further components	Repeat steps 6 and 7 as needed	
9. Display total weight	⇆/[TOGGLE]	

Animal Weighing

Purpose

Use this program to determine the weights of unstable samples (e.g., live animals) or to determine weights under unstable ambient conditions. In this program, the scale calculates the weight as the average of a defined number of individual weighing operations. These weighing operations are also known as "subweighing operations."

Available Features

- Animal weighing started manually or automatically
- Optional scale configuration in the Setup menu for automatically initializing this application when you turn on the scale
- Minimum load threshold for starting animal weighing:
  - 100 display increments for automatic start
  - 50 display increments for manual start
- Start range: Automatic start of animal weighing operation when three successive subweights lie within a user-defined tolerance range (calm = 2%, normal = 5%, active = 10%)
- Number of weighing operations for calculation of an average MDEF can be set before the beginning of each animal weighing operation
- Arithmetic average displayed as a result in the pre-set weight unit (identified by the ⚠ symbol)
- Optional multiplication of the arithmetic average by a user-defined factor MUL. A circle "**o**" is displayed as weight unit and MUL=XXXX is shown in the text line
- Toggling between weighed and calculated results by pressing [⇆]/[TOGGLE]
- Automatic output via the interface port:
  - Number of weighing operations **mDef**
  - Multiplication factor **Mul**
- Automatic output of results via the interface port:
  - Weighing result **x-Net**
  - Calculated result **x-Res**
- Stop limit: Unload threshold (50 display increments)
- Return to weighing mode by unloading the scale; i.e., when the load is below the stop threshold

Factory Settings

Auto-start application (automatic initialization with automatic start of animal weighing): off (302)

Animal activity (3 subweights lie within a preset range; i.e., animal is calm, normal or active: normal (372)

Start animal weighing: automatic (382)

Automatic printout of number of weighing operations used in averaging and of the calculation factors: off (711)

Print animal weights (automatic printout of weighed or calculated result):
On: animal wt. (392)

Preparation

- Turn on the scale:
  Press [I/⏻]/[ON/OFF]

> All display segments light up briefly

- Select the animal weighing application in the Setup menu:
  Press [SETUP]
- Select menu:
  Press the *MENU* soft key
  ([⇆]/[TOGGLE])
- Set parameter 217:
  See "Configuring the Scale"
- Exit the Setup menu:
  Press [SETUP]

Setting Parameters for the Animal Weighing Application

○ Access the Setup menu:
  Select *MENU*

- Set parameters for:
  - Start range:
    37 ANIMAL ACTIVITY
  - Start animal weighing
    38 START ANIMAL WGH.
  - Printout of results and calculated results:
    39 PRINT ANIMAL WTS.
  - Automatic output to interface port:
    71 PRINT APP. PARAM.

  See "Configuring the Scale"
- Exit the Setup menu:
  Press [SETUP]

Additional Functions

In addition to functions for:

- alphanumeric input
  (not when automatic start is configured or after animal weighing has been started),
- taring
  (not during alphanumeric input),
- printing,

you can also access the following functions from this application:

- calibration (not during alphanumeric input or after animal weighing has been started),
- setup (not after animal weighing has been started),
- turning off the scale.

Calibration/Adjustment

- Press [ISOTEST]/[TEST]

> See "Calibration/Adjustment" for further instructions

Setup (setting parameters)

- Press [SETUP]

> See "Configuring the Scale" for further instructions

Turning Off the Scale

- Press [I/⏻]/[ON/OFF]

> The scale shuts off

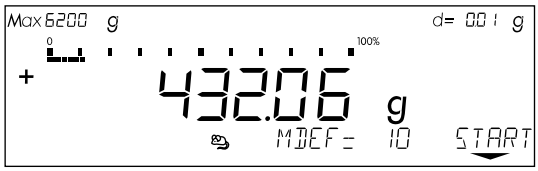
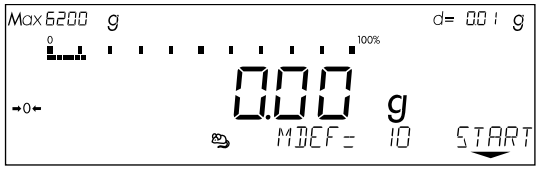
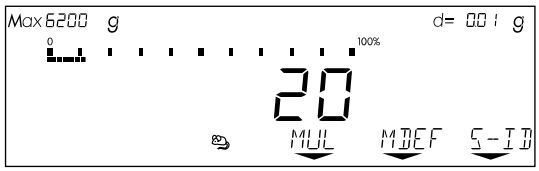
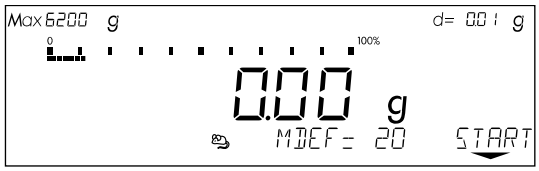
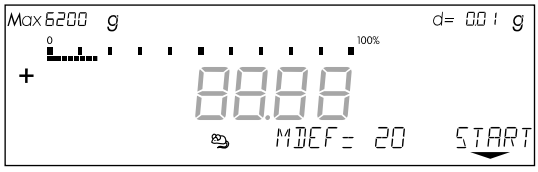
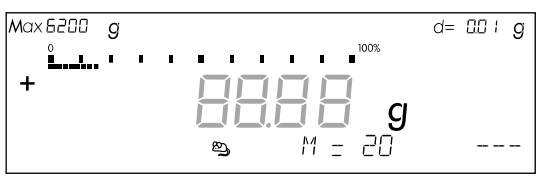
> The display goes blank

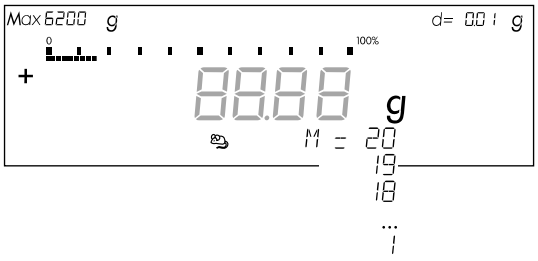
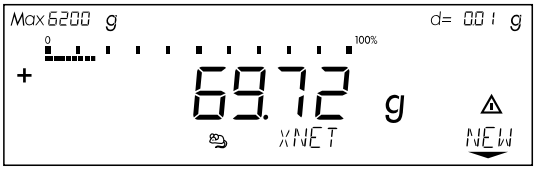
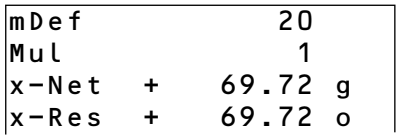
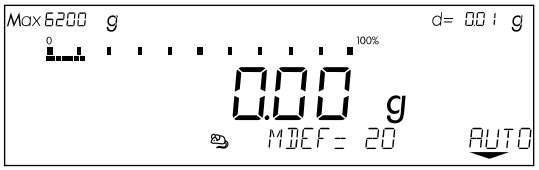
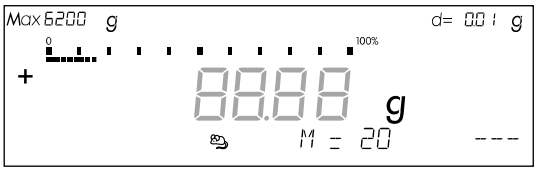
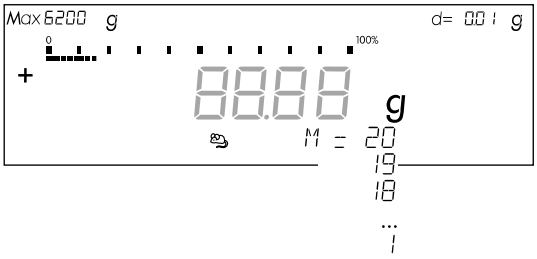
Practical Example

See next page

Practical Example

Determining Animal Weight with Automatic Start of 20 Subweighing Operations for Averaging;
Automatic Printout of the Number of Subweighing Operations and of the Animal Weight

Step	Key (or instruction)	Display/Output
1. Select the animal weighing application in the Setup menu	see "Preparation"	
2. Set the following animal weighing parameters in the Setup menu: – Animal activity: Active – Start animal weighing: Automatic – Printout: On: anim.wt.*fact. – Print: All parameters	 Setting 373 in Setup menu Setting 382 in Setup menu Setting 393 in Setup menu Setting 712 in Setup menu	
3. Prepare a container (cage)	Place empty cage on the scale	
4. Tare the scale	TARE	
5. Enter number of subweighing operations for averaging	2 0	
6. Save number	MDEF soft key ⇆/[TOGGLE]	
7. Weigh the first animal	Place 1st animal in cage	weight value fluctuates due to animal activity 
8. Start automatic animal weighing	START soft key F/[FUNCTION]	

Step	Key (or instruction)	Display/Output
The scale delays starting the subweighing operation until three successive subweights lie within the range defined for an "active" animal	When this criterion is met, the subweighing series begins	
After 20 subweighing operations (mdef: no. of subweighs) Mul: Calculation factor XNET arithm. average, net value)		
8. Unload the scale	Remove animal from cage	
9. If desired, weigh next animal	Place animal in cage	
Next weighing series begins automatically		
		

Over/Under Checkweighing +/–

Purpose

This program is used to check whether a sample corresponds to a pre-set target value or is within a specific tolerance range. In addition to the display in the measured value line, the results are shown on the bar graph and can also be routed through the interface port via control lines for further electronic processing.

Available Features

- Lower tolerance limit (minimum), target value and upper limit (maximum) stored in long-term memory
- Optional scale configuration in the Setup menu for automatically initializing this application and loading the values stored in long-term memory for the target value and the upper and lower tolerance limits when you turn on the scale
- Enter target value and limits by placing a load on the scale or using the numeric keys
- Control in entering target and tolerance values, so that the upper limit ≥ the target ≥ the lower limit ≥1 display increment
- Accuracy of a weight readout or keyboard input as target/tolerance value stored corresponds to the display accuracy
- Optional scale configuration in the Setup menu for automatic output to the interface port (print application parameters) of target value and tolerance limits when initialization is completed
- Control range for the scale's data output port lines is 30% to 170% of the target value
- Control range can be set anywhere from 10% to infinity. Control lines set when stability is reached within the control range; deleted only when you exit this application
- Optional configuration in the Setup menu for activation of control lines independent of weight value (weight within control range, stability reached)
- Toggling the display between weight readout and control (checkweighing) display by pressing F/[FUNCTION]. If the weight value exceeds tolerances, the measured value line shows the weight while the control display shows "LL" for "too low" or "HH" for "too high."
- Toggle the text line display between weight value and control display, nominal value "SETP" and tolerance values "MIN" and "MAX" by pressing the ⇆/[TOGGLE] key.
- Weight displayed on bar graph in relation to upper and lower limits and target value.
- Optional automatic printout of weight when it is within the control range at stability (AUTO PRINT +/–).

  After an automatic printout, the scale is blocked. Before you can generate the next printout, you must unblock the scale by unloading it (weight must be under 30% of the target) or by placing a load on the scale (bringing the weight up to at least 170% of the target).
- Press CF to delete the initialization parameters and end the over/under checkweighing program

Factory Settings

Auto-start application (automatic initialization with target value and tolerance limits loaded from long-term memory): off (302)

Automatic output of target value and tolerance limits via the interface port (print application parameters): off (711)

Auto print +/– (automatic printout of a weight when it is within the control range at stability): off (422)

Control lines +/– on (activating data output port lines): Within control range (431)

Preparation

The checkweighing program requires a target value for comparison to the current value. This target has a tolerance range, which is defined by absolute weight values: upper and lower limits. These limits can be entered either by storing weights on the scale or via key input.

There are four control lines, called data output port lines, which are activated as follows: (see also the diagram at the right):

- lighter
- equal
- heavier
- set

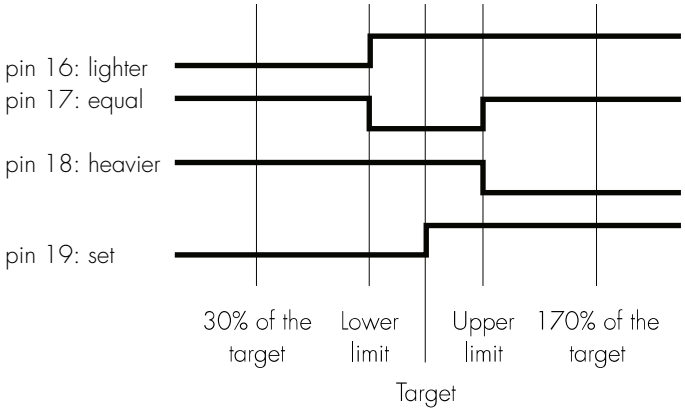
The control range spans 30% to 170% of the target value. You can configure this parameter in the Setup menu (43 +/- CTRL PORTS ON) to select whether the control lines are:

- always on
- activated within the control range
- activated at stability
- activated at stability within the control range

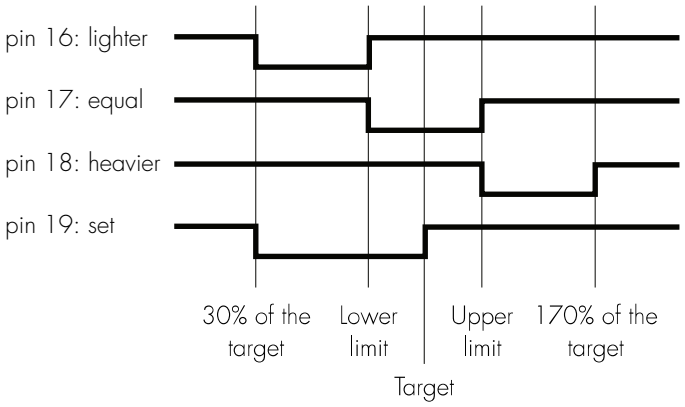
This makes it possible, for example, to connect a simple indicator for the weighing results (e.g., three different colors, one each for the weighing results: too light, O.K., too heavy).

Response of Control Lines During Checkweighing

Configurations:
- always on
- activated at stability



Configurations:
- activated within control range
- activated at stability within control range



● Turn on the scale:
Press [I/⏻]/[ON/OFF]

> All display segments light up briefly

● Select the over/under checkweighing application in the Setup menu: Press [SETUP]

● Select menu:
Press the *MENU* soft key
([⇆]/[TOGGLE])

● Set parameter *2 18*:
See "Configuring the Scale"

● Exit the Setup menu:
Press [SETUP]

Setting Parameters for the Over/ Under Checkweighing Application

○ Access the Setup menu:
Select *MENU*

● Set parameters for:

– Automatic initialization when scale switched on:
3 10 AUTO-START APP.

– Automatic printout when weight value is within limits and scale at stability:
4 2 AUTO PRINT +/-

– Control lines on:
4 3 +/- CTRL PORTS ON

Automatic output of initialization values to interface port:
7 1 PRINT APP. PARAM.

– Signal direction for data output port lines:
8 8 1 INPUT or
8 8 2 OUTPUT

See "Configuring the Scale"

● Exit the Setup menu:
Press [SETUP]

Additional Functions

In addition to functions for:

– alphanumeric input (not during initialization),

– taring (not during alphanumeric input),

– printing,

you can also access the following functions from this application:

– calibration (not during alphanumeric input or during initialization),

– setup (not during initialization),

– turning off the scale.

Calibration/Adjustment

● Press [ISOTEST]/[TEST]

> See "Calibration/Adjustment" for further instructions

Setup (setting parameters)

● Press [SETUP]

> See "Configuring the Scale" for further instructions

Turning Off the Scale

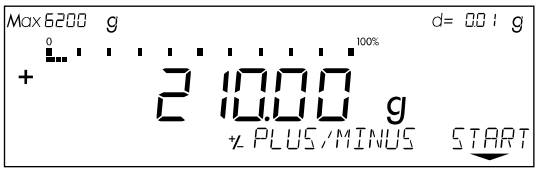
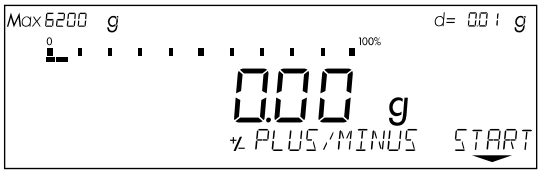
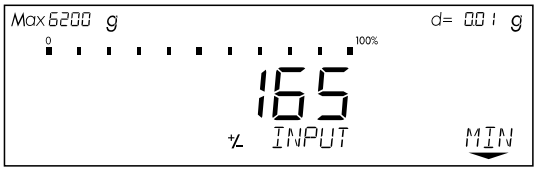
● Press [I/⏻]/[ON/OFF]

> The scale shuts off

> The display goes blank

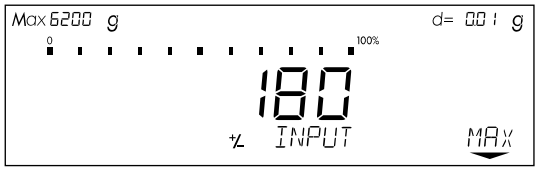
Practical Example

Checkweighing samples of 170 g, with an allowable tolerance of –5 g and +10 g.
Printout of upper and lower tolerance limits. Weighed values printed out automatically when stability is reached and weight is within the control range.

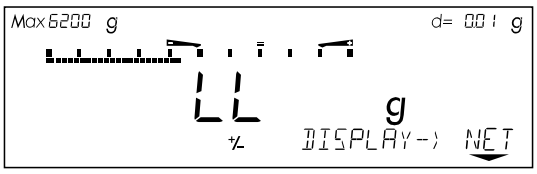
Step	Key (or instruction)	Display/Output
1. Select the checkweighing application in Setup	see "Preparation"	
2. Set the following checkweighing parameters in the Setup menu: – Auto print +/–: On: values in tol. – Print app. param.: All parameters	See "Configuring the Scale"	
3. Prepare a container for the sample	Place empty container on the scale	
4. Tare the scale	TARE	
5. Enter initialization values	START soft key F /[FUNCTION]	
6. Store target value (here: 170 g)	Place ideal sample in container	
7. Store target value and unload scale	SETP soft key F /[FUNCTION] Remove ideal sample from scale	
8. Enter value for lower limit (170 g – 5 g)	1 6 5	

9. Store lower limit value — *MIN* soft key / F /[FUNCTION]

10. Enter value for upper limit (170 g + 10 g) — 1 8 0

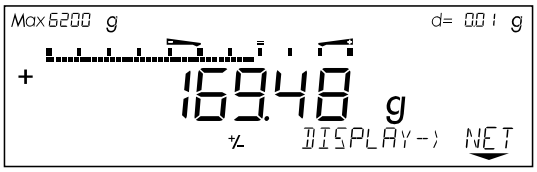


11. Store upper limit value — *MAX* soft key / F /[FUNCTION]



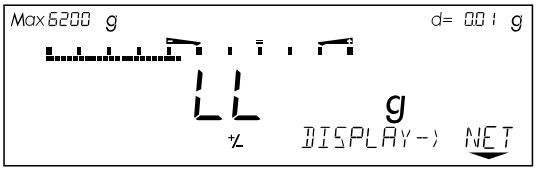

```
Setp   +   170.00 g
Min    +   165.00 g
Max    +   180.00 g
```

12. Weigh sample (in this case 169.48 g) — Place sample in container

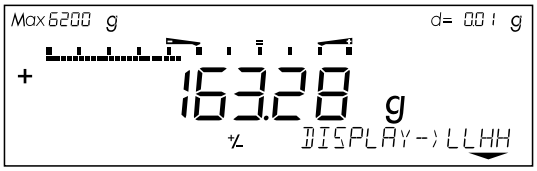



```
N      +   169.48 g
```

If the weight had been too low, the display would have shown the following: instead



13. In this case, switch to net value display (in this case: 163.28 g) — *NET* soft key / F /[FUNCTION]



14. Weigh next sample (if any) — Place sample in container

Recalculation

Purpose

With this application program you can compensate for over-poured components in formulation.

If a component is over-poured when weighing in the individual formulation components, the mixture already poured cannot be used in its current composition. To avoid having to discard the materials weighed, you can adjust the proportions of the formulation to compensate for the over-pour.

When you use this application, the recalculation procedure is mainly performed by the scale.

Available Features

- Individual components (up to 99) weighed in with a readout showing from "0" to the desired component weight
- Transaction counter shows the next component expected
- Weighed components are stored, followed by automatic printout and taring
- Additive weighing of components with printout
- Toggle the display between component weight and total formulation weight (additive mode) after first component is stored
- Stored component weight displayed as true net weight for 2 seconds
- Enter a divisor before or during component weighing. For example, if the formulation has a total weight of 100 g, enter the divisor 10 to weigh in a total formulation of 1,000 g.
- If a component is over-poured, you can use the recalculation function to change the amount of this component indicated in the formulation by using the plus or minus keys or numeric input. A factor is then calculated by which all component amounts are then adjusted.
- Recalculation factor displayed in the text line, with a warning symbol if the factor is not equal to 1.
- All components displayed with number and amount (by weight) to be added in follow-on filling. Components displayed in sequence by the scale.
- Display of actual net weight during follow-on filling
- After the amounts of the components already weighed have been corrected, weighing continues according to the adjusted formulation amount. The readout is recalculated (updated) according to the divisor.
- You can repeat the over-pour correction procedure as often as necessary, if other components are over-poured.
- After follow-on (corrective) filling, the total amount differs from that given for the formulation, but the proportion of components in relation to each other is the same.
- You can have the weight printed out after each measurement
- Choose whether the current component weight or the tare value is printed after each measurement
- Individual component weights are printed as "Compxx."
- Press CF to exit the application program. The component memory is cleared and the sum of components printed as "S-Comp."

Factory Settings

Print application parameters (automatic output of application parameters): off (711)

Line format: for other apps/GLP (722)

Preparation

- Turn on the scale: Press [I/⏻]/[ON/OFF]

> All display segments light up

- Select the Recalculation application in the Setup menu: Press [SETUP]
- Select menu: Press the menu soft key ([⇆]/[TOGGLE])
- Set parameter 219: see "Configuring the Scale"
- Exit the Setup menu: Press [SETUP]

Setting Parameters for the Recalculation Application

○ Access the Setup menu: Select *MENU*

- Set parameters for:
  - Automatic printout: 711 *PRINT APP. PARA.*
  - Line format: 712 *LINE FORMAT*

  see "Configuring the Scale"
- Exit the Setup menu: Press [SETUP]

Additional Functions

In addition to the functions for:

- alphanumeric input,
- taring (not during alphanumeric input), and
- printing,

you can also access the following functions from this application:

Calibration/Adjustment

- Press [ISOTEST]/[TEST]

> See "Calibration/Adjustment" for further instructions

Setup (setting parameters)

- Press [SETUP]

> See "Configuring the Scale" for further instructions

Turning Off the Scale

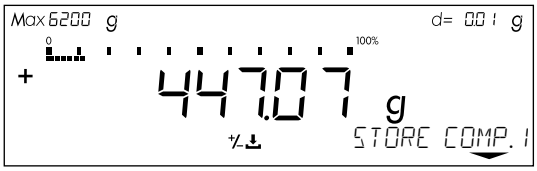
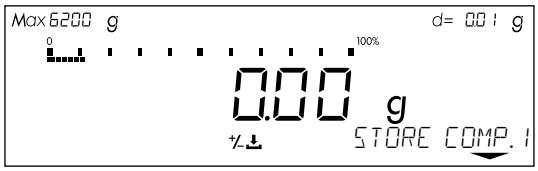
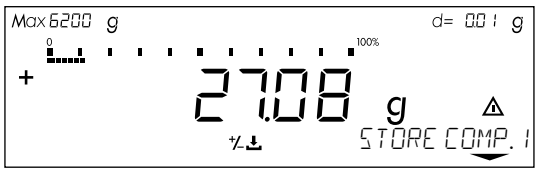
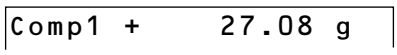
- Press [I/⏻]/[ON/OFF]

> The scale shuts off

> The display goes blank

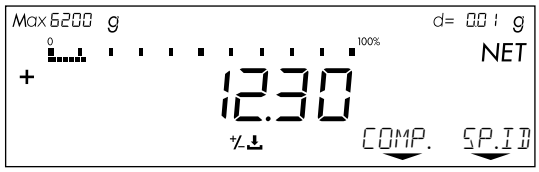
Practical Example

When weighing in formulation components, the second component is over-poured.
(Parameter settings: Recalculation application: 219; Print all parameters: 712)

Step	Key (or instruction)	Display/Output
1. Select the recalculation application in the Setup menu	see "Preparation"	
2. Place container for filling components on the scale	Place empty container on the scale	
3. Tare	TARE	
4. Add the first component	Weigh the first component into the container	 
5. Store component	Press the COMP. 1 soft key (F/[FUNCTION])	
6. Add the second component	Weigh the second component into the container	
7. Start recalculation, because 12.42 g were poured rather than 12.30 g	RECAL soft key [ISOTEST/TEST]	
8. Either press the minus key to correct the value…	MINUS soft key repeatedly	

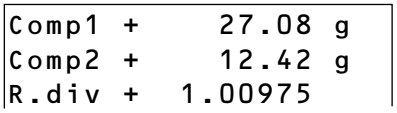
… or enter the desired value

1 2 · 3 0

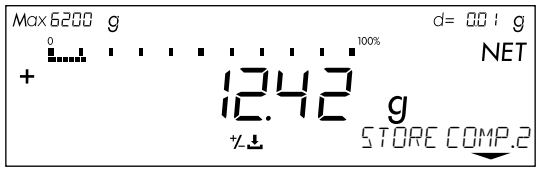


9. Confirm the new value

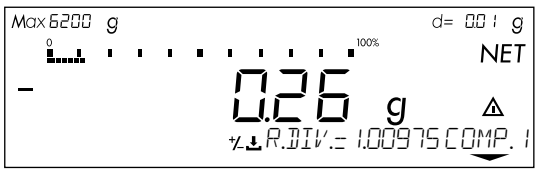
COMP.2 soft key
or COMP. soft key



The true net value is displayed for 2 seconds



Follow-on filling amount for first component is displayed

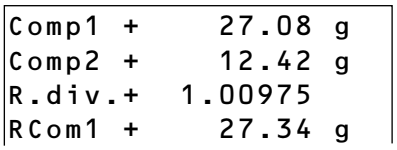


10. Follow-on filling of 1st component

Weigh the first component up to 0

and store

COMP. 1 soft key



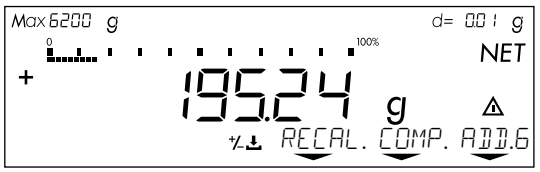
The true net value is displayed for 2 seconds

11. Weigh in further components, if called for in the formulation

Repeat steps 4 and 5 as needed

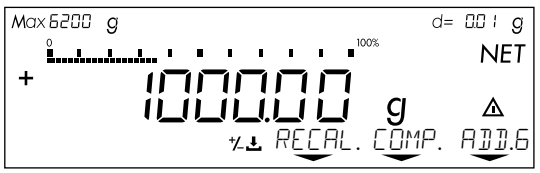
12. Toggle to the additive mode, if required

ADD. soft key



13. Add further components, as required …
(here, e.g., up to the total weight of the formulation: 1,000 g)

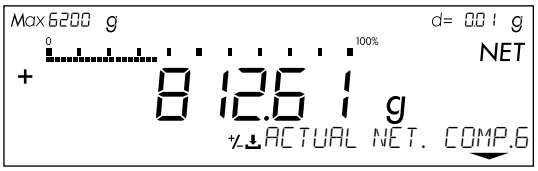
Add components to container



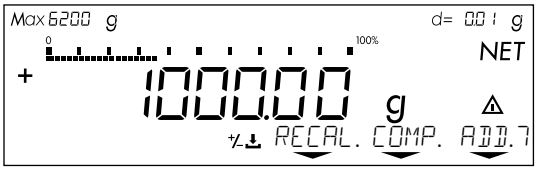
14. … and store (here, e.g., the 6th component) — *ADD.6* soft key

```
Comp1 +    27.08 g
Comp2 +    12.42 g
R.div.+  1.00975
RCom1 +    27.34 g
Comp3 +    18.39 g
Comp4 +    31.49 g
Comp5 +   107.50 g
Comp6 +   812.61 g
```

The true net value (of the 6th component) is displayed for 2 seconds



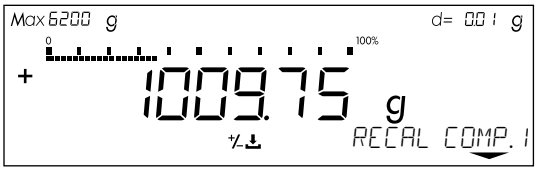
Then the total weight is displayed



15. End the weighing procedure — CF
Total weight is printed

```
Comp1 +    27.08 g
Comp2 +    12.42 g
R.div.+  1.00975
RCom1 +    27.34 g
Comp3 +    18.39 g
Comp4 +    31.49 g
Comp5 +   107.50 g
Comp6 +   812.61 g
Tot.cp+  1009.75 g
```

Total weight is displayed
Component memory is cleared

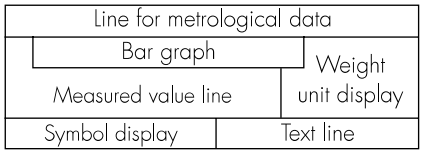


Data Output Functions

There are 3 options for data output:

- Output to the display/control unit
- Output to a printer (generate a printout)
- Output to a peripheral device (e.g., computer) via the interface port

Output to the Display and Control Unit



The display is divided into 6 sections:

- Line for metrological data
- Bar graph
- Measured value line
- Weight unit display
- Symbol display
- Text line

Line for Metrological Data (when used as a legal measuring instrument)

This line shows:

Max 6200 *g* – Maximum scale capacity (e.g., 6,200 g)

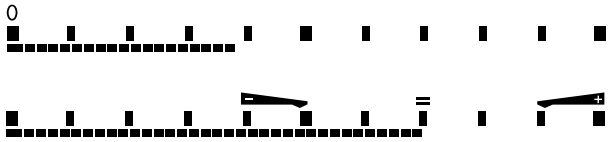
Min 0.5 *g* – Minimum scale capacity; the weight must not go below this limit when the scale is used in legal metrology

e = 0.1 *g* – Verification scale interval of the scale; irrelevant if the scale is not used in legal metrology (e.g., 0.1 g)

d = 0.01 *g* – Readability: Indicates the actual scale interval (display increment of the scale) (e.g., 0.01 g)

Bar graph

In the bar graph, weighing results are displayed either



- as a percentage of the maximum scale capacity, or
- in relation to a target value, with tolerance limits indicated.

Measured Value Line

This line displays:

1234.56 – The current weight readout (digits bordered with a broken line are invalid in use for legal metrology)

01-31-18 – Information on the scale and display and control unit (e.g., version numbers)

-96-AbC 1 – Data entered by the user (e.g., lot number)

Weight Unit Display

This line shows:

kg – Current weight unit (e.g., kg)

pcs – Designation of other units of measure (e.g., piece count)

NET ⊙ – Operating status (e.g., net weight; printing)

o – Identification of currently selected menu item

Symbol Display

This line shows:

isoCAL – Indicators and warnings (e.g., isoCAL)

% ⁂ ⚖ +/- ⬇ – Symbol of application program selected

Text Line

This line contains:

REPROTEST – Explanatory text for value displayed in measured value line

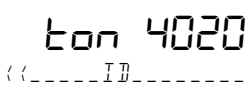
INFO MENU INPUT – Designation of current function of the soft keys (below the arrows)

▼ ▼ ▼ – Arrows indicating the soft keys designated above

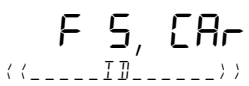
Display of "Longer" Values

You can enter values of up to 20 characters in length (e.g., identification numbers). These are displayed in the measured value line; this line, however, can only show up to 8 characters at a time.

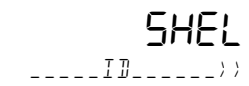
When a 20-character value is displayed, for example, the last 8 characters (13 through 20) are displayed first (in this example, the ID number is: "Shelf 5, carton 4020").



The text line displays the name of the value ("ID") and an arrow indicating the direction of the characters not displayed.



Display characters 5 through 12: Press [<]



Display characters 1 through 4: Press [<]

Printing a Data Record

Purpose

You can generate a printout of weights, other measured values and identification numbers for documentation purposes. You can format the printout to meet individual requirements.

Available Features

Print manually/automatically:
To print the information contained in the measured value line (weight readout, calculated value, numeric entry, alphabetic entry)

Line format: You can configure a data ID code of up to 6 characters for each of the values printed; this data ID code is printed at the beginning of the line

Sample ID: You can configure an extra line for identification of each weighed or calculated value

Print application parameters:
You can generate a printout of the values configured for initialization of an application before printing the measured results

ISO/GLP-compliant printout:
To print out parameters relating to weighing conditions

Auto print: To have a printout generated automatically when certain conditions are met, e.g., time elapsed, stability reached, etc.

Print net-total: For a printout of a component or total weight when using the "net-total" application

Print animal weights: For an automatic printout of animal weight, or of animal weight plus calculated weight after averaging

Auto print +/–: for automatic printout of a weight when it lies within preset limits at stability

Factory Settings

Print manually/automatically:
Printout generated manually (by pressing ⊙/[PRINT]) or automatically, depending on stability parameter:
Manual after stability (612)

Line format:
A data ID code of up to 6 characters preceding weighed or calculated values:
For other applications/GLP (722)

Print application parameters:
Print one or more of the initialization values for the current application program: Off (711)

ISO/GMP-compliant printout/ data record: Documentation of weighing conditions for each series of measurements/each lot:
Off (8101)

Auto print:
Automatic printout of weighed/ calculated values:
not a factory setting; see "Print manually/automatically" (612)
Stop auto print: not possible by pressing ⊙/[PRINT] (622)
After 1 display update (631)

Print net-total:
Printout of component weight (net weight) or total weight (tare weight):
Auto print net (731)

Print animal weights:
Automatic printout of animal weight, or of animal weight plus calculated result: On: animal wt. (392)

Auto print +/–:
Automatic printout of weights when within tolerance at stability:
off (422)

- Parameter settings:
  See "Configuring the Scale"

Print Manually/Automatically

The printout contains the current value in the measured value display (weight readout with weight unit; calculated value; numeric/ alphabetic display)

`+ 1530.000 g`	Weight in grams
`+ 58.5620 ozt`	Weight in Troy ounces
`+ 253 pcs`	Piece count
`+ 88.23 %`	Percentage
`+ 105.78 o`	Calculated value

Line Format

The current value displayed can be printed with a data ID code of up to 6 characters at the beginning of the line. You can use this data ID code, e.g., to designate a weight readout as a net weight (N) or a calculated value as a piece count (Qnt)

`ID ABC123DEF456GH`	Identification number*
`L ID ABC123DEF456GH`	Lot number (weighing series)*
`W ID ABC123DEF456GH`	Weight set number*
`N + 1530.000 g`	Net value
`Qnt + 253 pcs`	Quantity
`Prc + 88.23 %`	Percentage
`Nom. + 2000.00 g`	Exact calibration weight

* = only on ISO/GMP-compliant printouts

Sample ID

You can have each weighed or calculated value that you print preceded by a line of text containing numbers and/or letters. You can either print this ID immediately as an alphanumeric input (press ⊙/[PRINT]) or store it as the sample ID (`S ID` soft key)

`S ID ABC123DEF456GH`	Sample ID (with less than 14 characters)
`ABC123DEF456GHI789JK`	Sample ID (with more than 14 characters)
`NUM 12345678`	Numeric key output when ⊙/[PRINT] is pressed

Print Application Parameters

You can generate a printout of one or more of the values configured for initialization of an application as soon as you initialize the scale. This can include such values as nRef, wRef, pRef, etc.

`nRef 10 pcs`	Counting: Reference sample quantity
`wRef 1.23456 g`	Counting: Average piece weight
`pRef 80 %`	Weighing in percent: Reference percentage
`Wxx% 1200.00 g`	Weighing in percent: Reference weight
`mDef 10`	Animal weighing: Number of subweighs for averaging
`Mul 0.00347`	Animal weighing: multiplication factor
`Setp + 1000.035 g`	Over/under checkweighing: Target weight
`Min + 981.054 g`	Over/under checkweighing: Lower limit
`Max + 1020.063 g`	Over/under checkweighing: Upper limit
`N1 + 278.11 g`	Net-total: net weight
`T2 + 1821.48 g`	Net-total: tare weight
`Comp7 + 278.11 g`	Net-total: weight of 7th component
`Tot.cp+ 2117.56 g`	Net-total: total weight of components (only for ISO/GMP-compliant records)

Auto Print

You can have the weight readout (or the value displayed in the measured value line) printed automatically; this printout can be generated after a certain number of display updates; you can also configure whether or not the auto-print function is dependent on the stability parameter. The display update frequency depends on both the model of the scale and the current operating state.

N + 1530.00 g		Net weight
S ID 12345678901234		Sample ID
Stat		Display blank
Stat L		Display underload
Stat H		Display overload

Print Net-Total

When you run the net-total application, you can have the weight of the last component weighed (net value) or the total weight (tare value) printed automatically.

Comp1 + 1821.48 g	First net weight

Print Animal Weights

When using the animal weighing application, you can have the results printed automatically upon completion of the averaging process. You can also have both the weight and the calculated result printed.

mDef 10	Number of subweighs for averaging
Mul 0.00347	Multiplication factor
x-Net + 1530.00 g	Result of averaging
x-Res + 5.30 o	Calculated result

Auto Print +/–

With the over/under checkweighing application, you can have the result printed automatically if it lies within a defined range (acceptable value).

N + 1530.000 g	Net weight
Setp + 1000.035 g	Target weight
Min + 981.054 g	Lower limit
Max + 1020.063 g	Upper limit
N + 1010.147 g	Printout of acceptable values

Setting a Printout Acceptable for Legal Metrology

You can access the Setup menu for the scale to set a Sartorius printer to print hard copies acceptable for legal metrology (last digit identified):
– YDP01IS: 554
– YDP02: 555
– YDP03: 556
– YDP02IS: 55 10
– YDP04IS: 55 14

ISO/GMP-compliant Printout/Record

You can have the parameters pertaining to the ambient weighing conditions printed before (GMP header) and after (GMP footer) the values of a weighing series. These parameters include:

- Date
- Time at the beginning of a weighing series
- Scale manufacturer
- Scale model
- Model serial number
- Software version
- Lot ID (weighing series no.)
- Time at the conclusion of the weighing series
- Field for operator signature

```
----------------------
28.06.1996      16:12

       SARTORIUS
Mod.           FB6CCE-H
Ser. no.       70419914
Ver. no.       01-31-18

ID      12345678901234
----------------------
L ID    12345678901234
nRef             10 pcs
wRef       1.35274 g
Qnt     +       235 pcs
Qnt     +      4721 pcs
S ID    12345678901234
Qnt     +       567 pcs
----------------------
28.06.1996      16:13

Name:

----------------------
```

Dotted line
Date/time
(only with the YDP03-0CE printer)
Scale manufacturer
Scale model
Scale serial number
Software version
(display and control unit)
Scale ID no.
Dotted line
Weighing series no.
Application initialization value
Application initialization value
Counting result
Counting result
ID for counting result
Counting result
Dotted line
Date/time
(only with the YDP03-0CE)
Field for operator signature
Blank line
Dotted line
Blank line
Blank line

Operating the Scale with an ISO/GMP-capable Documentation Device (Printer)

You can connect a special printer from Sartorius to your scale for printing ISO/GMP-compliant records.

This printer, called "Data Printer" (order no.: YDP03-0CE), offers the following features:

- ISO/GMP function can be switched on and off
- Date/time
- ID no. for identification of workstation/operator
- Documentation includes scale-specific data

Note:
The time indicated on the printout consists of only hours and minutes.

For ISO/GMP-compliant documentation with a computer, you will need special software. Contact Sartorius for a detailed description on how to create this software.

Interface Description

Purpose

Your Factory scale comes equipped with an interface port for connection to a computer or other peripheral device.

You can use an on-line computer to change, start and/or monitor the functions of the scale and the application programs.
The interface port also has four data output port lines for the over/under checkweighing program.

⚠ Warning When Using Prewired RS-232 Connecting Cables!

RS-232 cables purchased from other manufacturers often have incorrect pin assignments for use with Sartorius scales. Be sure to check the pin assignment against the chart on the right before connecting the cable, and disconnect any lines marked "Internally Connected" (e.g., pin 6). Failure to do so may damage or even completely ruin your scale and/or peripheral device.

Features

Type of interface:	Serial interface
Operating mode:	Full duplex
Standard:	RS-232
Transmission rates:	150; 300; 600; 1,200; 2,400; 4,800; 9,600; 19,200 baud
Parity:	Space, odd, even
Character format:	1 start bit, 7-bit ASCII, parity, 1 or 2 stop bits
Handshake:	2-wire interface: via software (XON/XOFF); 4-wire interface: via hardware handshake lines (CTS/DTR)
Data output format of the balance:	16 or 22 characters

Factory settings:

Transmission rate:	1,200 baud	(5 1 4)
Parity:	Odd	(5 2 3)
Stop bits:	1 stop bit	(5 3 1)
Handshake:	Hardware 1 character after CTS	(5 4 3)
Print manually/automatically:	Manual with stability	(6 1 2)
Stop automatic printing:	Not possible	(6 2 2)
Automatic printout, time-dependent:	After 1 display update	(6 3 1)
Line format:	For other applications/GMP	(7 2 2)

Preparation

- See the chapter entitled "Overview" for the pin assignment chart

Line Format (Data Output Format)

You can output the values displayed in the measured value line and the weight unit with or without a data ID code

Example: Without data ID code
`+ 253 pcs`

Example: With data ID code
`Qnt + 253 pcs`

Configure this parameter in the Setup menu under item 72.

The output with data ID code has 16 characters; without data ID code, 22 characters.

Output Format with 16 Characters

Display segments that are not activated are output as spaces. Characters without a decimal point are output without a decimal point.

The following characters can be output, depending on the characters displayed on the scale:

Normal Operation

Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	+	*	D	D	D	D	D	D	D	D	*	U	U	U	CR	LF
or	–		.	.	.	.	.	.	.	.		*	*	*		
or	*		*	*	*	*	*	*	*	*						
or					0	0	0	0	0	0						

*: Space
D: Digit or letter
U: Unit symbol
CR: Carriage return
LF: Line feed

Special Codes

Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	*	*	*	*	*	*	–	–	*	*	*	*	*	*	CR	LF
or							H	H								
or							L	L								
or							C									

*: Space
– –: Weight; all numbers shown in stable readout
H: Overload
H H: Overload during checkweighing
L: Underload
L L: Underload during checkweighing
C: Calibration/adjustment

Error codes

Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	*	*	*	E	r	r	*	#	#	#	*	*	*	*	CR	LF

*: Space
#: Error code number

Data output example: + 1255.7 g

Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	+	*	*	*	1	2	5	5	.	7	*	g	*	*	CR	LF

Position 1: Plus or minus sign or space
Position 2: Space
Positions 3–10: Weight with a decimal point; leading zeros = space
Position 11: Space
Positions 12–14: Unit symbol or space
Position 15: Carriage return
Position 16: Line feed

Data Output with 22 characters

When data with an ID code is output, the ID code consisting of 6 characters precedes the data with the 16-character format. These 6 characters identify the following value.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
I	I	I	I	I	I	+	*	D	D	D	D	D	D	D	D	*	U	U	U	CR	LF
	*	*	*	*	*	–		.	.	.	.	.	.	.	.		*	*	*		
						*		*	*	*	*	*	*	*	*						
										0	0	0	0	0	0						

I: ID code character[1)]
*: Space
D: Digit or letter
U: Unit symbol[1)]
CR: Carriage return
LF: Line feed

[1)] depends on scale type; e.g., not all units and characters are available on scales verified for use in legal metrology

Special Codes

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
S	t	a	t	*	*	*	*	*	*	*	*	–	–	*	*	*	*	*	*	CR	LF
												H	H								
												L	L								
												C									

*: Space
– –: Weight; all numbers shown in final, stable readout
H: Overload
H H: Overload during checkweighing
L: Underload
L L: Underload during checkweighing
C: Calibration/adjustment

Error codes

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
S	t	a	t	*	*	*	*	*	E	r	r	*	#	#	#	*	*	*	*	CR	LF

*: Space
#: Error code number

Unit symbol U[1)]

			No stability parameter
g			Grams
k	g		Kilograms
c	t		Carats
l	b		Pounds
o	z		Ounces
o	z	t	Troy ounces
t	l	h	Hong Kong taels
t	l	s	Singapore taels
t	l	t	Taiwanese taels
G	N		Grains
d	w	t	Pennyweights
m	g		Milligrams
/	l	b	Parts per pound
t	l	c	Chinese taels
m	o	m	Mommes
K			Austrian carats
t	o	l	Tola
b	a	t	Baht
M	S		Meshgal
%			Percent
p	c	s	Pieces (piece count)

ID code characters[1)]

Stat	Status
T2	Application tare memory
N	Net weight (T1 = 0)
N1	Net weight (T1 0)
Qnt	Quantity
Prc	Percentage
nRef	Reference sample quantity
pRef	Reference percentage
wRef	Average piece weight
Wxx%	Reference percentage weight
NUM	Numeric input
Compxx	Component no. xx in net-total component mode
Tot.cp	Total weight in net-total component mode
mDef	No. of subweighs for animal weighing
Mul	Multiplication factor for animal weighing
x–Net	Result in animal weighing
x–Res	Calculated result in animal weighing
Setp	Target value for checkweighing
Min	Lower limit for checkweighing
Max	Upper limit for checkweighing

Data Input Format

You can connect a computer to your scale to send commands via the scale interface port to control scale functions and applications.

The commands sent are control commands and may have different formats; e.g., control commands can have up to 26 characters. Each character must be transmitted according to the settings configured in the Setup menu for data transmission.

Farmat for Control Commands

Format 1:	Esc	!	CR	LF						
Format 2:	Esc	!	#	_	CR	LF				
Format 3:	Esc	!	#	&	(max. 20 &)	&	_	CR	LF	
Format 4:	Esc	!	_	CR	LF					

Esc:	Escape	_:	Underline (ASCII: 95)
!:	Command character	CR:	Carriage return
#:	Number	LF:	Line feed
&:	Number or letter	max:	Depends on command character; i.e., parameter: once the max. length is reached, input received via the interface port is cut off, rather than rejected as for a key input

See under "Overview" for an ASCII table

Format 1

!	Meaning
K	Weighing mode 1
L	Weighing mode 2
M	Weighing mode 3
N	Weighing mode 4
O	Block keys
P	Print
R	Unblock keys
S	Restart
T	Tare [TARE]
Z	Internal calibration/adjustment

Format 2

!#	Meaning
f0	Function key [⇆]/[TOGGLE]
f1	Function key [ISOTEST]/[TEST]
f2	Function key [F]/[FUNCTION]
f3	Zero (separate zeroing key)
f4	Tare (separate zeroing key)
s3	Function key [CF]
x0	Perform internal calibration
x1	Print scale model
x2	Print weighing cell serial number
x3	Print weighing cell software version
x4	Print display and control unit software version
x5	Print scale ID number
x6	Print weight set number
x7	Print lot number (weighing series ID)

Format 3
(not allowed in the Setup menu)

!#	Meaning
z5	Input scale ID number
z6	Input weight set number
z7	Input lot number

Format 4

!	Meaning
t	Text input in display

Synchronization

During data communication between the scale and an on-line device (computer), messages consisting of ASCII characters are transmitted via the interface. For error-free data communication, the parameters for baud rate, parity, handshake mode and character format must be the same for both units.

You can set these parameters in the Setup menu so that they match those of the on-line device. You can also define parameters in the scale to make data output dependent on various conditions. The conditions that can be configured are described under each of the application program descriptions.

If you do not plug a peripheral device into the scale interface port, this will not generate an error message.

Handshake

The scale interface (Sartorius Scale Interface = SBI) has transmit and receive buffers.
You can define the handshake parameter in the Setup menu:

- Hardware handshake (CTS)
- Software handshake (XON, XOFF)

Hardware Handshake

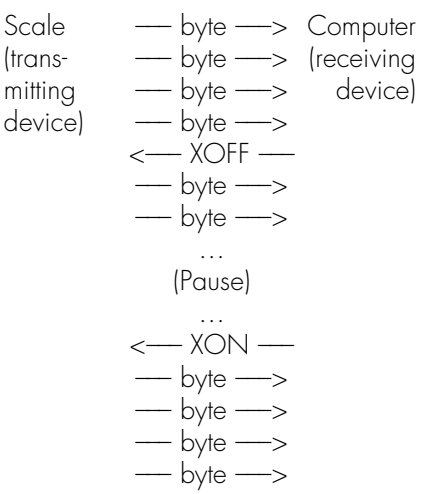
With a 4-wire interface, 1 more character can be transmitted after CTS (Clear to Send).

Software Handshake

The software handshake is controlled via XON and XOFF. When a device is switched on, XON must be transmitted to enable any connected device to communicate.

When the software handshake is configured in the Setup menu, the hardware handshake becomes active after the software handshake.

The data transmission sequence is as follows:



Transmitting Device:

Once XOFF has been received, it prevents further transmission of characters. When XON in received, it re-enables the transmitting device to send data.

Receiving Device:

XOFF is transmitted after the 26th character has been stored. To prevent too many control commands from being received at one time, XON is not transmitted until the buffer has transmitted all but 14 characters.

If the device addressed does not understand the control command, the SBI receiving device activates DTR (Data Terminal Ready) after 6 more characters have been received. The busy signal is deactivated by XON (14 characters).

Activating Data Output

You can define the data output parameter so that output is activated either when a print command is received, or automatically and synchronously with the scale display, or at defined intervals (see application program descriptions and auto print settings).

Data Output by Print Command

The print command can be transmitted by pressing ⊙/[PRINT] or by a software command (Esc P).

Automatic Data Output

In the "auto print" operating mode, data are output to the interface port without a print command. You can choose to have data output automatically at defined print intervals with or without the stability parameter. Whichever parameter you select, the data will be output as the readouts appear on the scale display. The display update frequency depends on both the model of the scale and the current operating state.

If you select the auto print setting, data will be transmitted immediately the moment you turn on the scale. In the Setup menu, you can configure whether this automatic output can be stopped and started by pressing ⊙/[PRINT].

Pin Assignment Chart

(For devices with 12-pin round female connector)

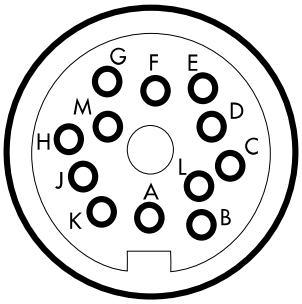
Female Interface Connector:

12-contact, with screw lock hardware for cable gland

Male Connector Required:

Type C091D, 12-pin
Round male connector with screw lock hardware for cable gland, Amphenol (IP65) Sartorius order no.: 69QC0010

Pin Assignment Chart:



12-pin round connector	25-pin adapter	RS-232 signal (SBI and xBPI)	RS-485* signal (xBPI)
A	18	Control output "heavier"	Control output "heavier"
B	2	Data output (RxD)	RxD – TxD – N
C	3	Data input (RxD)	RxD – TxD – P
D	20	Data Terminal Ready (DTR)	
E	7, 8, 14	Signal GND	Signal GND
F	13, 25, 12	+5 V output	+5 V output
G	16	Control output "lighter"	Control output "lighter"
H	5	Clear to Send (CTS)	
J	17	Control output "equal"	Control output "equal"
K	15	Universal remote-control switch**	Universal remote-control switch**
L	19	Control output "set"	Control output "set"
M	11	+12 V output	+12 V output

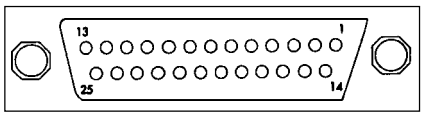
Connect shield to connector housing so that the electrical resistance is almost zero

* Only with a special data interface – see "Accessories"

** For this function, refer to "Universal Switch for Remote Control" in the section entitled "Additional Functions"

Cabling Diagram (Adapter cable – Round – DB25-Scale) Order No. YCC01-0016M3

Female Interface Connector:
25-contact, D-Submini DB25S with screw lock hardware
Pin labeling of the 25-contact D-SUB connector:



Connector – front view

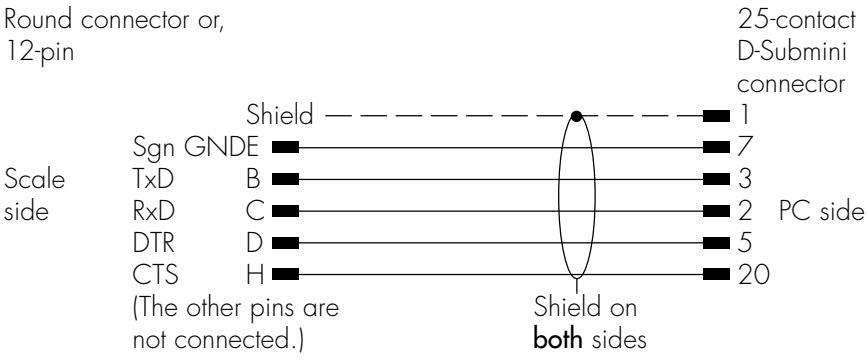
Male Connector Used:
(please use connectors with the same specifications)
25-pin D-Submini DB25, with integrated shielded cable clamp assembly (Amp type 826 985-1C) and fastening screws (mate screws for female screw lock, Amp type 164 868-1)

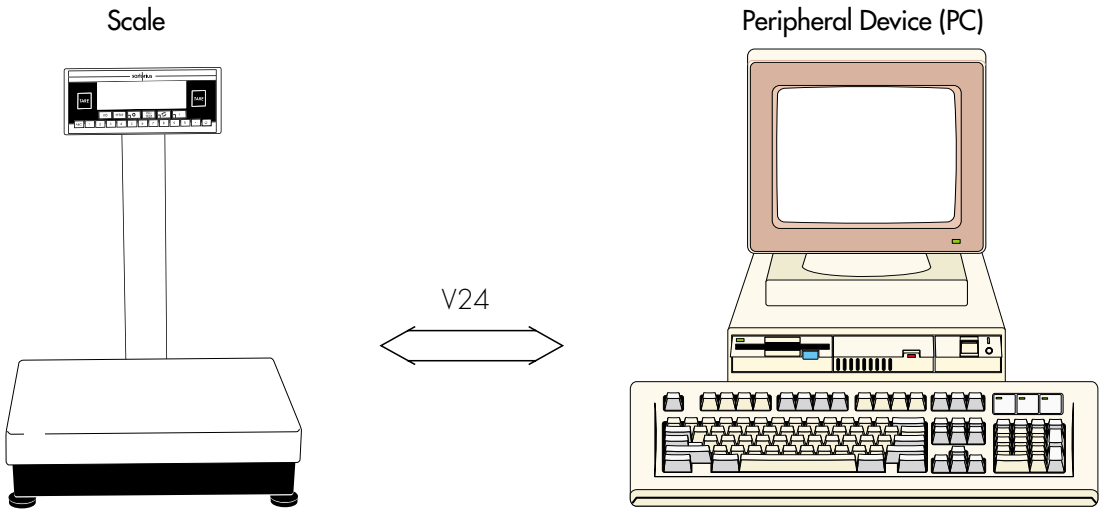
Pin Assignment:
Pin 1: Shield
Pin 2: Data Output (TxD)
Pin 3: Data Input (RxD)
Pin 4: Not Connected
Pin 5: Clear to Send (CTS)
Pin 6: Internally Connected
Pin 7: Internal Ground (GND)
Pin 8: Internal Ground (GND)
Pin 9: Not Connected
Pin 10: Not Connected
Pin 11: +12 V
Pin 12: +5 V Connection for a switch
Pin 13: +5 V
Pin 14: Internal Ground (GND)
Pin 15: Universal Switch
Pin 16: <
Pin 17: =
Pin 18: >
Pin 19: SET
Pin 20: Data Terminal Ready (DTR)
Pin 21: Not Connected
Pin 22: Not Connected
Pin 23: Not Connected
Pin 24: Not Connected
Pin 25: +5 V

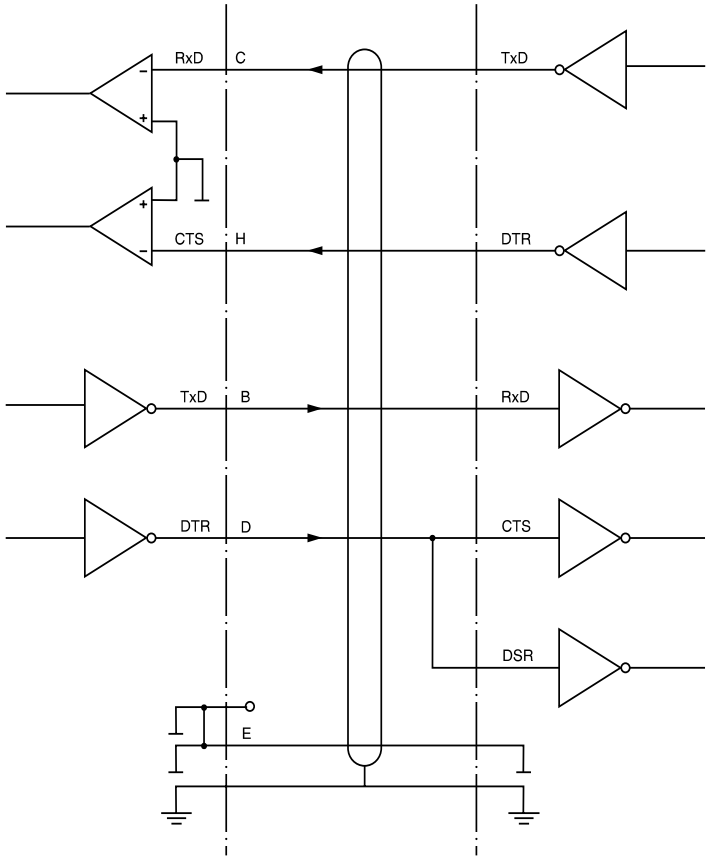
Cabling Diagram (Adapter Cable for PC)

(Adapter cable – YCC01-03ISM5 – round – DB25-PC)
Diagram for interfacing a computer or a peripheral device to the scale using the RS-232C/V24 standard and interface cables up to 15 m (50 ft) long.

Cabling Diagram
Connection assignments for the cable from the scale to an RS-232 PC interface







PC 25-pin	or	PC 9-pin
2		3
20		4
3		2
5		8
6		6
7		5

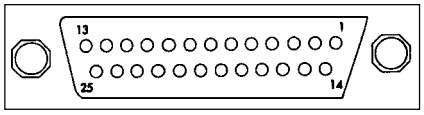
Type of cable: AWG 24 specification

Pin Assignment Chart

(only for models
FBG... EDE-. 0000B)

Female Interface Connector:

25-position D-Submini, DB25S,
with screw lock hardware for cable gland



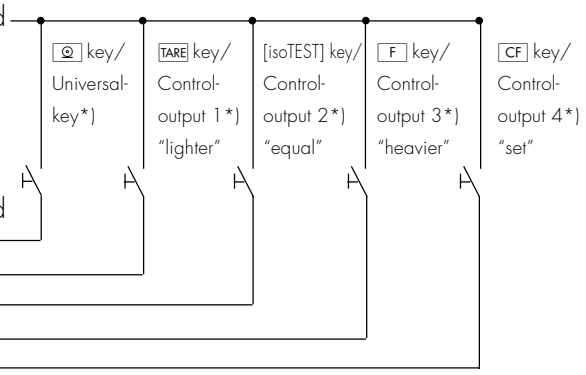
Connector – front view

Male Connector Required:
(please use connectors with the same specifications)

25-pin D-Submini, DB25S,
with integrated shielded cable clamp assembly (Amp type 826 985-1C)
and fastening screws
(Amp type 164 868-1)

Pin Assignment Chart:

Pin 1: Signal Ground
Pin 2: Data Output (TxD)
Pin 3: Data Output (RxD)
Pin 4: Signal Return (TxD/RxD)
Pin 5: Clear to Send (CTS)
Pin 6: Internally Connected
Pin 7: Internal Ground
Pin 8: Internal Ground
Pin 9: Reset _ In**)
Pin 10: – 12 V
Pin 11: + 12 V
Pin 12: Reset _ Out**)
Pin 13: + 5 V
Pin 14: Internal Ground
Pin 15:
Pin 16:
Pin 17:
Pin 18:
Pin 19:
Pin 20: Data Terminal Ready (DTR)
Pin 21: Supply Voltage Ground "COM"
Pin 22: Not Connected
Pin 23: Not Connected
Pin 24: Supply Voltage Input + 15 … 25 V
Pin 25: +5 V

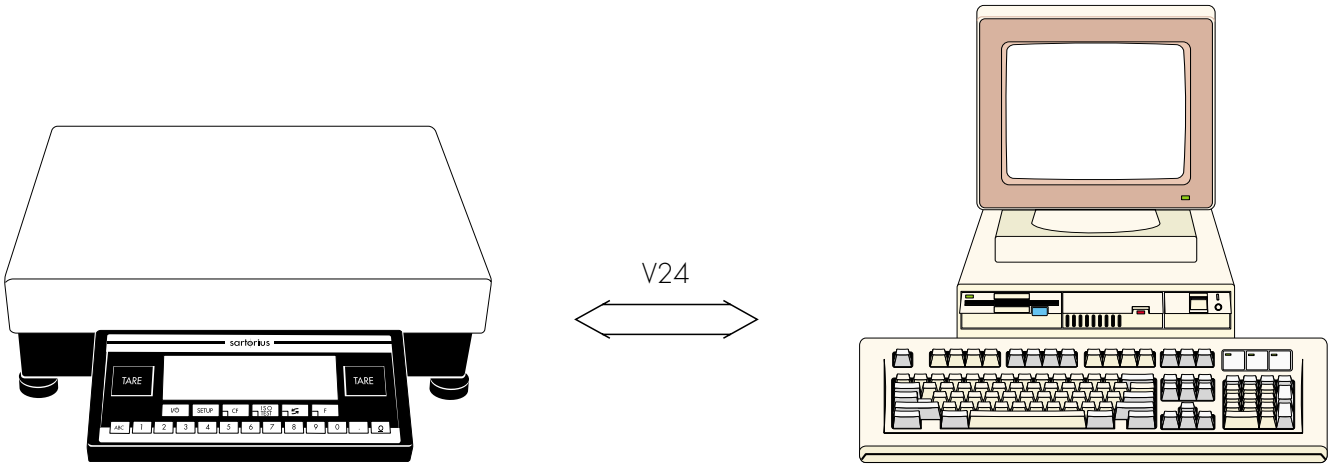

Q key/ Universal-key*)
TARE key/ Control-output 1*) "lighter"
[isoTEST] key/ Control-output 2*) "equal"
F key/ Control-output 3*) "heavier"
CF key/ Control-output 4*) "set"

*) = See "Additional Functions" for information on changing pin assignments

**) = Hardware restart

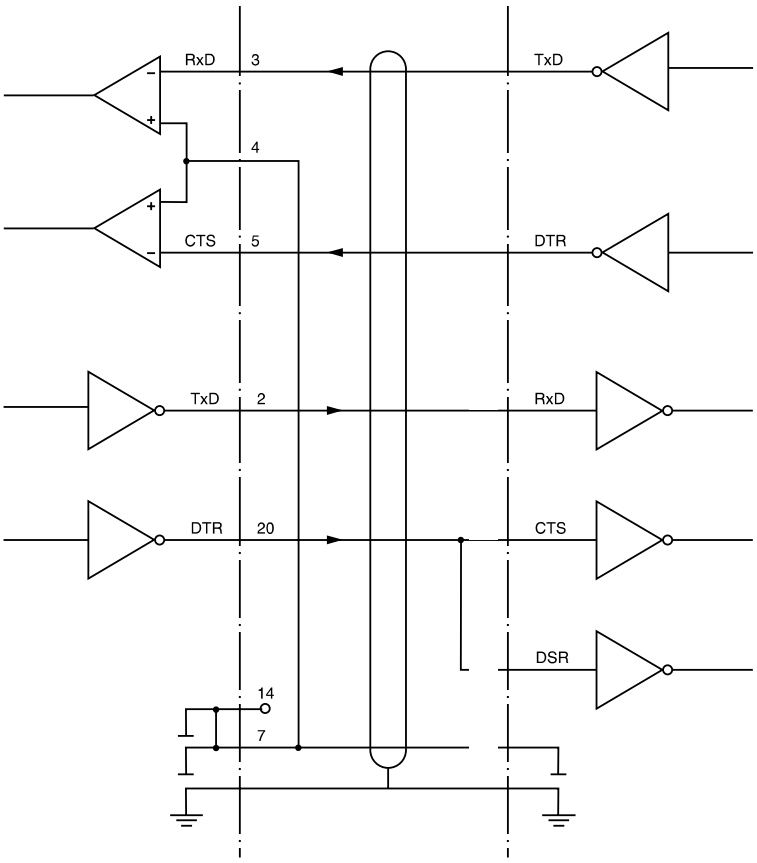
Cabling Diagram

– Diagram for interfacing a computer or different peripheral device to the scale using the RS-232/V24 standard and cables up to 15 m (50 ft.) long



Scale

Peripheral Device (PC)



PC 25-pin	or	PC 9-pin
2		3
20		4
3		2
5		8
6		6
7		5

Type of cable: AWG 24 specification

Additional Functions

Password

You can block access to parameter settings in the Setup menu and to the ID-code input function, as well as to the exact calibration weight, by assigning a password.

Enter the password by selecting *INPUT* in the Setup menu.
See "Configuring the Scale" for a detailed description.

Protecting Menu Parameters

In the Setup menu, you can define whether menu parameters are:

- accessible for changes (*ALTERABLE*, *811*)
- can be read only (*READABLE*, *812*)

Acoustic Signal

An acoustic signal is emitted when you press a key. When the key pressed is allowed, the signal is a single beep tone; when it is not allowed, this is signaled by a double beep (key does not initiate a function). In the Setup menu, you can configure whether

- the acoustic signal should sound (*ON*, *821*), or
- the acoustic signal should not sound (*OFF*, *822*)

Blocking the Keys

When you operate the scale by an on-line computer, it is advisable that you block the keys on the display and control unit. In the Setup menu, you can configure whether

- the keys are active (*KEYS UNBLOCKED*, *831*),
- the keys are blocked (*KEYS BLOCKED*, *832*), except for [SETUP] and [I/⏻]/[ON/OFF], or
- the alphanumeric keys are blocked (*ALPHANUM. BLOCKED*, *833*).

Universal Switch for Remote Control

You can connect an external universal switch to the interface port of your scale (e.g., a foot switch) for remote control of the functions listed below. In the Setup menu, you can configure which function is to be controlled via remote switch:

Remote universal switch

Function	Menu setting
[⊙]/[PRINT] key	*841*
[TARE] key	*842*
[ISOTEST]/[TEST] key	*843*
[F]/[FUNCTION] key	*844*
[CF] key	*845*
[⇆]/[TOGGLE] key	*846*

See "Pin Assignment Chart."

Display Backlighting

You can have the display backlighted for improved readability of displayed values. In the Setup menu, you can configure whether the

- display backlighting is on (*ON*, *851*),
- display backlighting is off (*OFF*, *852*), or
- display backlighting switches off automatically if there is no change in the readout for at least 4 minutes (*AUTO OFF AFT. 4 MIN.*, *853*)

Power-On Mode

You can configure the scale so that once a power supply is connected,

- the scale is turned off (*OFF/ON/STANDBY*, *861* or *OFF/ON*, *862*), or
- the scale switches on automatically (*AUTO ON*, *864*)

You can also set the configurations so that when the scale is switched off after use, it is

- off (*OFF/ON*, *862*) – function not available on FB…-EDE models, or
- in the standby mode (*OFF/ON/STANDBY*, *861*)

When you turn on the scale, a self-test of the functions is run (test is displayed; the bar graph is shown). After the self-test has been completed, the weighing range of the scale is displayed (line for metrological data shows different maximum values).

Automatic Shutoff

When parameter *862* is selected in the Setup menu, you can configure whether

- the scale will shut off automatically after 4 minutes without use (*AFTER 4 MIN.*, *871*), or
- automatic shutoff is deactivated (*OFF*, *872*)

Printing an ISO/GMP-compliant Record

In the Setup menu, you can configure whether

- no ISO/GMP-compliant record will be printed (*OFF*, *8101*),
- an ISO/GMP-compliant record will be printed after calibration/adjustment (*ONLY FOR CAL./ADJ.*, *8102*), or
- every printout will be an ISO/GMP-compliant record (*ALWAYS ON*, *8103*)

Undoing All Parameter Changes – Reset Function

There is a factory setting for each parameter. In the Setup menu, you can configure whether

- menu factory settings will be restored after exiting Setup (*RESTORE*, *911*), or
- menu factory settings will not be restored after exiting Setup (*DO NOT RESTORE*, *912*)

MP8 Interface Emulation

Purpose

With the MP8 interface you can connect peripheral devices of the MP8 generation that have separate AC power supplies, such as the 73822... Data Control terminal, a YFC... Flow Rate Controller, a YDI50Z Data Input dedicated keyboard, etc., to your FB or FBG series scale or balance.

Available Features

– The scale can only be used to determine weights.

– The interface communicates exclusively in the MP8 binary protocol.

– Select application programs for use with the MP8 under item 3 in the scale operating menu.

– The Index 2 program for MP8 can be selected under item 4 of the scale operating menu.

– The following parameters remain accessible as before:
  – Weighing parameters [1-x-x]
  – Extra functions [8-x-x]
  – Reset function [9-x-x]
  (see "Setup Parameters (Overview")" in the chapter entitled "Configuring the Scale" in the Installation and Operating Instructions).

– "MP8 interface" is not allowed during use in legal metrology. When the menu access switch is sealed, the MP8 interface will not function.

Factory Settings
(for MP8 functions)

MP8 application: 1 MP8 3-1-1

Program index 2: 1 IND.2.1

Preparation

● Turn on the scale:
Press [I/⏻]/[ON/OFF]

> All symbols are displayed briefly

Switch to the MP8 interface:

● Press [SETUP]

● Select scale operating menu: MENU soft key (press the [⇆]/[TOGGLE] key)

● Select and confirm the BALANCE MENU: press the [∨] and then the [>] key

● Confirm FACTORY SETTING: [>] key

● Select and confirm MP8 mode [9-1-9]
Press [∨] or [∧] key, repeatedly if necessary; then press [>]

● Press [SETUP]

Parameter Settings for the MP8 Interface

● Press [SETUP]

● Select the scale operating menu:
MENU soft key (press the [⇆]/[TOGGLE] key)

● Select and confirm:

– 3 APPLICATION PROG.1 APP. SELECTION:
  1 MP8 3-1-1 or
  ...
  9 MP8 3-1-9 or
  10 MP8 3-2-1 or
  ...
  18 MP8 3-2-9 or
  19 MP8 3-3-1 or
  ...
  27 MP8 3-3-9

– 4 PROGRAM-INDEX; 2 IND.2:
  1 IND.2.1 or
  2 IND.2.2 or
  3 IND.2.3 or
  4 IND.2.4

– 5 INTERFACE:
  1 BAUD RATE
    1 150 BAUD or
    2 300 BAUD or
    3 600 BAUD or
    4 1,200 BAUD or
    5 2,400 BAUD or
    6 4,800 BAUD or
    7 9,600 BAUD or
  2 PARIT
    2 SPACE or
    3 ODD or
    4 EVEN

– 6 PRINT WEIGHING
  1 PRINT MAN./AUTO
  1 MANUAL WITHOUT STABILITY or
  2 MANUAL WITH STABILITY or
  4 AUTOMATIC WITHOUT STABILITY or
  5 AUTOMATIC AT STABILITY

● Store settings and exit the Setup menu: Press [SETUP]

Error Codes

Error codes are displayed in the main display or application display for 2 seconds.
The program then returns automatically to the previous mode (e.g., weighing).

Display	Cause	Solution
No segments appear on the display	No AC power is available	Check the AC power supply
	The AC adapter is not plugged in	Plug in the AC adapter
	Automatic shutoff configured in the Setup menu (code 8 7 1)	Press [I/⏻]/[ON/OFF] to turn on the scale or select code 8 7 2 in the Setup menu ("no automatic shutoff")
H	The load exceeds the scale's capacity	Unload the scale
L or Err 54	The weighing pan is not in place	Place the weighing pan on the scale
Err 01 › DISPLAY RANGE	Data output not compatible with output format	Change the configuration in the Setup menu
Err 02 CAL.N.POSSIBLE	Calibration/adjustment criterium not met, e.g., – not tared – the scale is loaded	Calibrate only when zero is displayed Press [TARE] to tare Unload the scale
Err 03 CAL./ADJ. INTERRUPT	Calibration/adjustment could not be completed within a certain time	Allow the scale to warm up again and repeat the adjustment process
Err 06 INT.WT. DEFECTIVE	Built-in calibration weight is defective	Contact your local Sartorius Service Center
Err 07 FUNCTION BLOCKED	Function not allowed in scales verified for use in legal metrology	Contact your local Sartorius Service Center for information on having the settings changed
Err 08* ‹› ZERO RANGE	The load on the scale is too heavy to zero the readout	Check whether the "power-on zero range" is set
Err 09* ‹ 0 NOT ALLOWED	Taring is not possible when the gross weight is ≤ zero	Zero the scale
Err 10 TARE FCT. BLOCKED	The tare key is blocked when there is data in the tare memory (e.g., when running the net-total application); the tare functions cannot be accessed simultaneously	Press [CF] to clear the tare memory; then you can tare by pressing [TARE]
Err 11 TARE 2 BLOCKED	Tare memory not allowed	Check the tare value entered
Err 12 TARE › MAX.	Tare stored in memory greater than weighing range or range limits	Check sample/container
Err 17 ADJ.-WT. › MAX.	Internal adjustment is not possible because the preload is too heavy	Reduce the preload or change the configuration

* = occurs only when scale is operated via the SBI interface (ESC f3_/f4_)

Display	Cause	Solution
Err 30 PRINT FCT. BLOCKED	Interface port for printer output is blocked	Contact your local Sartorius Service Center
Err 31 PRT. FCT. BLOCKED	External device is not ready to receive, interface handshake timeout ("XOff, CTS")	Contact your local Sartorius Service Center
REF.WT. TOO LIGHT	Error in storing reference weight (with the counting or weighing-in-percent application)	Weight too light or there is no sample on the scale
UPD. NOT POSSIBLE	Reference sample updating not possible (with the counting application)	See "Counting" in "Operating the Scale" for reference updating criteria
NO NUM. VALUE XXXXX TOO LOW XXXXX TOO HIGH	Input wrong (for any application program), e.g., alphabetic input not allowed	Follow the instructions for the application programs
TOO MANY CHARACTERS	Input text too long	Allowable text lengths, incl. decimal point: – S ID and L ID: 20 characters max. – W ID: 14 characters max. for weights
Err 10 x = 1: x = 2: x = 3: x = 4: All segments displayed continuously	Key is stuck Key pressed when turning on the scale: CF, [ISOTEST]/[TEST], ⇆/[TOGGLE], F/[FUNCTION] 0, 3, 4, 9 2, 5, 6, ⊙/[PRINT], TARE – right 1, 7, 8, ABC, TARE – left Either SETUP was pressed when you turned on the scale, or this key is stuck	Contact your local Sartorius Service Center Release key
Err 340	Operating parameter (EEPROM) is wrong	Contact your local Sartorius Service Center
no IIP	Weighing cell (platform) defective	Contact your local Sartorius Service Center
BLOCKED	Function blocked	None
The special code ⚠ remains displayed	None of the keys has been pressed since the scale was turned on	Press a key
The weight readout changes constantly	Unstable ambient conditions	Set up the scale in another area
	Too much vibration, or the scale is exposed to a draft	Change Setup configurations to adapt the scale to the ambient conditions
	A foreign object is caught between the pan and the scale housing	Remove the foreign object
The weight readout is obviously wrong	The scale has not been calibrated/adjusted	Calibrate/adjust the scale
	The scale was not tared before weighing	Tare before weighing
	The scale is not level	Level the scale
	The dust cover is caught under the weighing pan	See "Replacing the Dust Cover" in the chapter "Care and Maintenance"

If any other errors occur, contact your local Sartorius Service Center!

Care and Maintenance

Service

Regular servicing by a Sartorius technician will extend the service life of your scale and ensure its continued weighing accuracy. Sartorius can offer you service contracts, with your choice of regular maintenance intervals ranging from 1 month to 2 years.

Repairs

Repair work must be performed by trained service technicians only. Any attempt by untrained persons to perform repairs may result in hazards for the user.

Cleaning

⚠ Make sure that no dust or liquid enters the scale housing

⚠ Do not use any aggressive cleaning agents (solvents or similar agents)

- Disconnect from AC power: unplug the AC adapter from the wall outlet (mains supply)
- If connected, unplug an interface or adapter cable from the scale
- Carefully remove any sample residue/spilled powder by using a brush or a hand-held vacuum cleaner
- Clean the scale using a piece of cloth wet with a detergent
- After cleaning, wipe down the scale with a soft cloth

Replacing the Dust Cover

> Replace damaged dust covers

For the FB06BBE-S

- Remove the following components from the scale:

– Draft shield cover

– Glass cylinder

– Load plate

– Load plate support

– Turn the shield ring clockwise and remove

– Old dust cover

- Place the new dust cover on the scale and press down on the front and back along the edges until the cover is firmly seated
- Place the shield disk on the scale and turn it counterclockwise
- Place all remaining parts back on the scale in the reverse order (see above)

For Scales FB6CCE-H, FB2CCE-S, FB12CCE-S, FB6CCE-S, FB12CCE-I

- Remove the following parts from the scale:

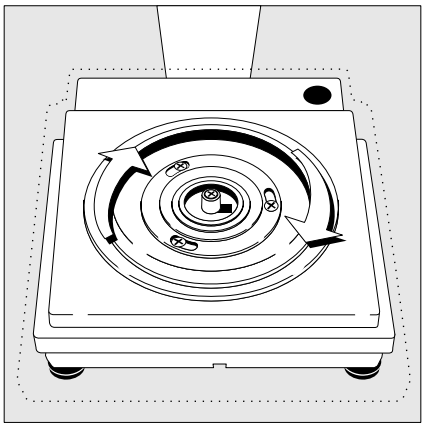
– Load plate

– Load plate shield (depending on the type of model)

– Remove the old dust cover

- Place the new dust cover over the scale (peel off the backing from the adhesive area)
- Place all remaining parts back on the scale in the reverse order (see above)

⚠ The dust cover must not touch the load plate



Safety Inspection

If there is any indication that safe operation of the scale with the AC adapter is no longer warranted:

- Disconnect from AC power: unplug the AC adapter from the wall outlet (mains supply)

> Lock scale in a secure place to prevent it from further usage

Safe operation of the scale with the AC adapter is no longer ensured when

– there is visible damage to the AC adapter

– the AC adapter no longer functions properly

– the AC adapter has been stored for a relatively long period under unfavorable conditions

In this case, notify your nearest Sartorius Service Center or service technician. Maintenance and repair work may only be performed by authorized Sartorius service technicians who

– have access to the required service and maintenance manuals

– have attended the relevant service training courses

Recycling

To ensure adequate protection for safe shipment, Sartorius products are packaged to the extent necessary using environmentally friendly materials. After successful installation of the equipment, you should return this packaging for recycling because it is a valuable source of secondary raw material.

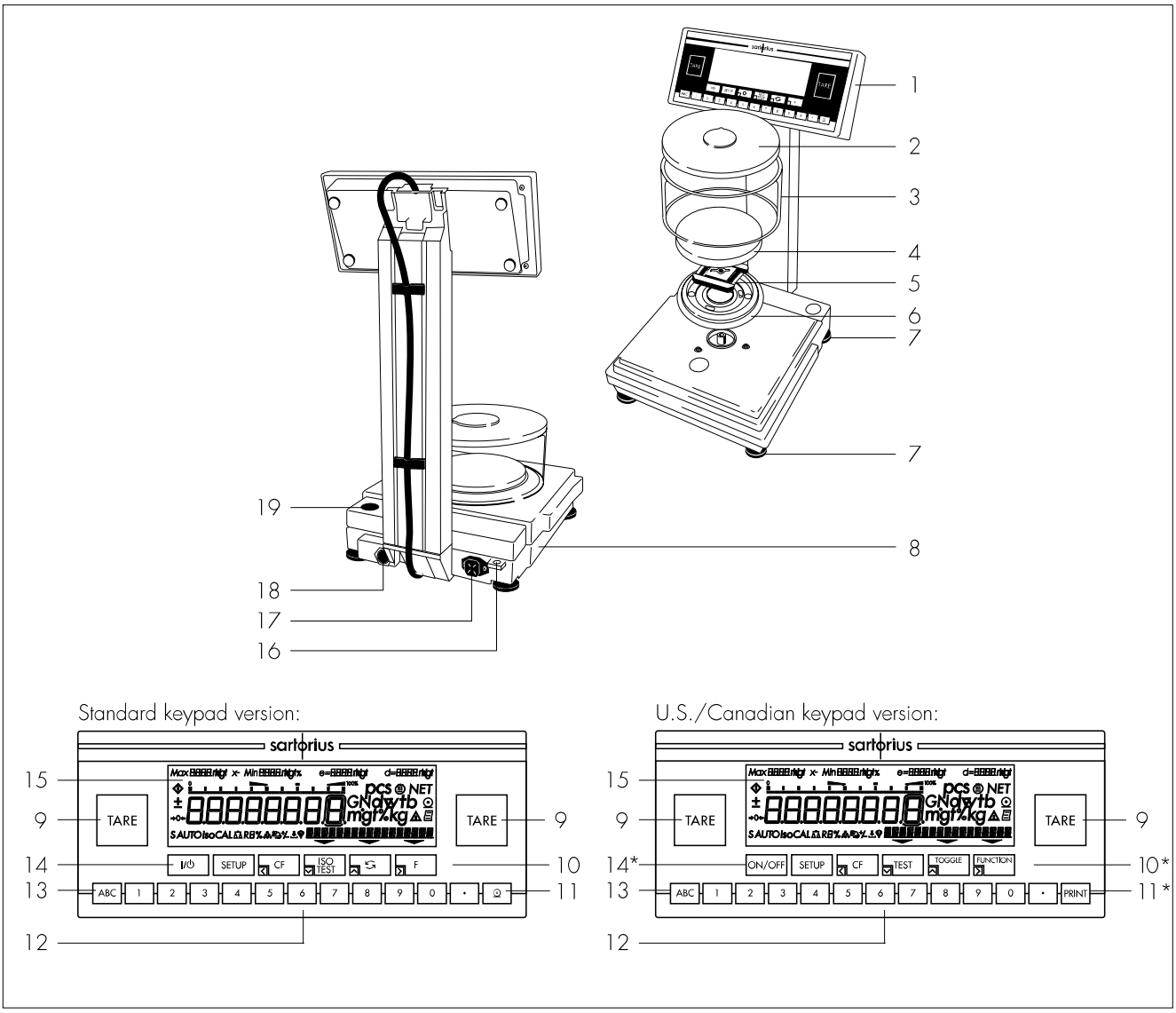
For information on recycling options, including recycling of old weighing equipment, contact your municipal waste disposal center or local recycling depot.

Overview

Overview of the Scales

FB06BBE-S(0CE)

"-0CE" identifies the scale as verified for legal metrology in the EU[1])



* = As shown in this illustration, there are some differences between the standard and the U.S./Canadian keypad versions.

No.	Designation	Spare Part Order No.
1	Display and control unit	
2	Draft shield cover	69 LP0002
3	Glass cylinder	69 14290
4	Load plate	69 LP0004
5	Load plate support	69 LP0005
6	Shield ring	69 LP0003
7	Leveling foot	69 B20005
8	Metrological ID label (only on scales verified for legal metrology in the EU[1])	
9	Tare key	
10	Function keys	
11	Print key	
12	Numeric keys	
13	Shift key for entering letters	
14	On/off key	
15	Display	
16	Lug for attaching an antitheft locking device	
17	AC power socket	
18	Data interface port	
19	Level indicator	

Not shown:

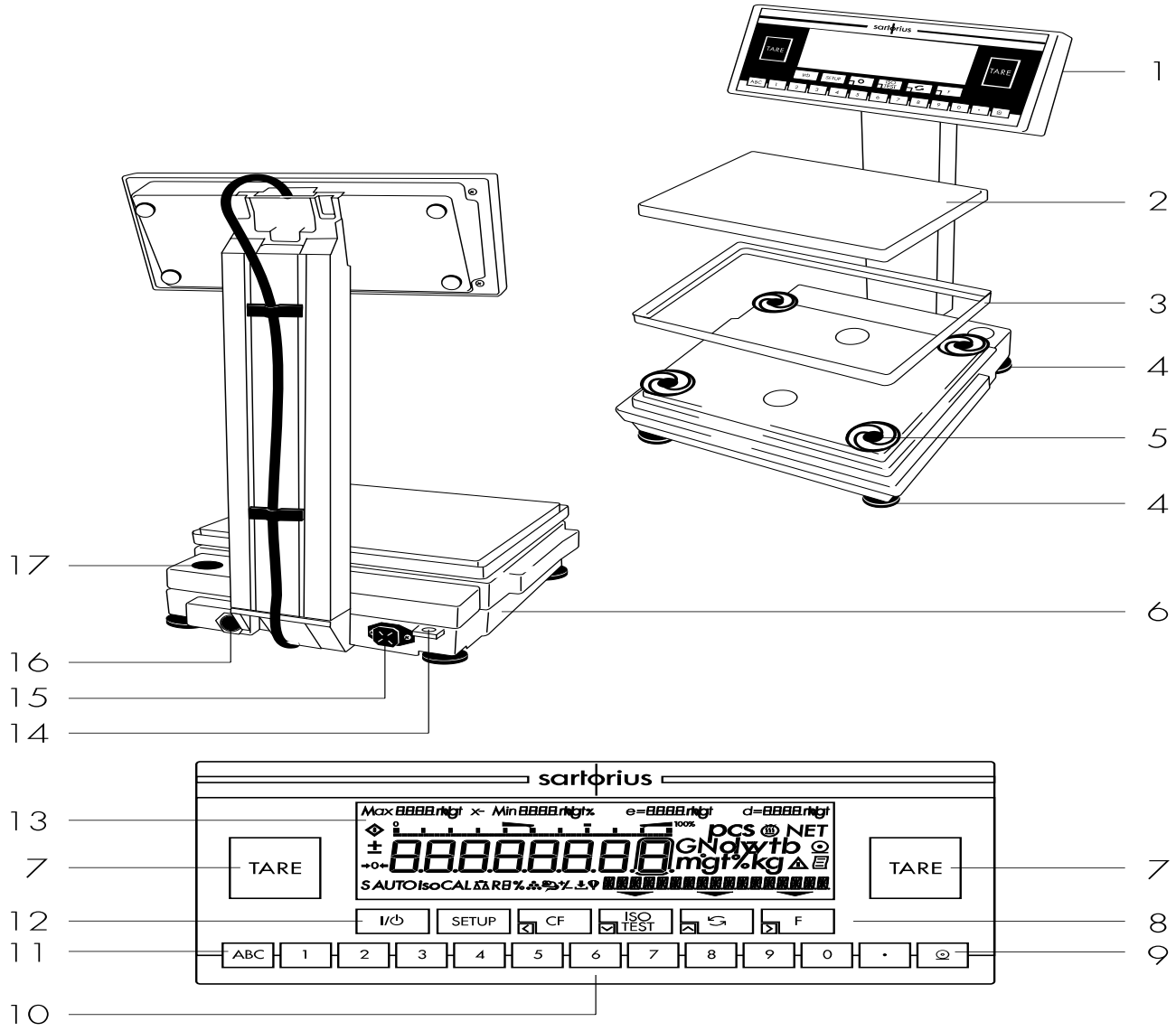
Dust cover for weighing platform	69 60FB01
Dust cover for display & control unit	69 60LP03
Caps and plugs for covering ports (set)	69 B20009

[1]) including the Signatories of the Agreement on the European Economic Area

Overview of the Scales

FB6CCE-H(0CE), FB2CCE-S(0CE), FB12CCE-S(0CE), FB6CCE-S(0CE), FB12CCE-I(0CE)

"-0CE" identifies the scale as verified for legal metrology in the EU[1])



* = As shown in this illustration, there are some differences between the standard and the U.S./Canadian keypad versions.

No.	Designation	Spare Part Order No.
1	Display and control unit	
2	Load plate	69 LP0007
3	Load plate shield (depends on type of model)	69 LP0008
4	Leveling foot	69 B20005
5	Shock absorber	69 LP0010
6	Metrological ID label (only on scales verified for legal metrology in the EU[1])	
7	Tare key	
8	Function keys	
9	Print key	
10	Numeric keys	

No.	Designation	Spare Part Order No.
11	Shift key for entering letters	
12	On/off key	
13	Display	
14	Lug for attaching an antitheft locking device	
15	AC power socket	
16	Data interface port	
17	Level indicator	

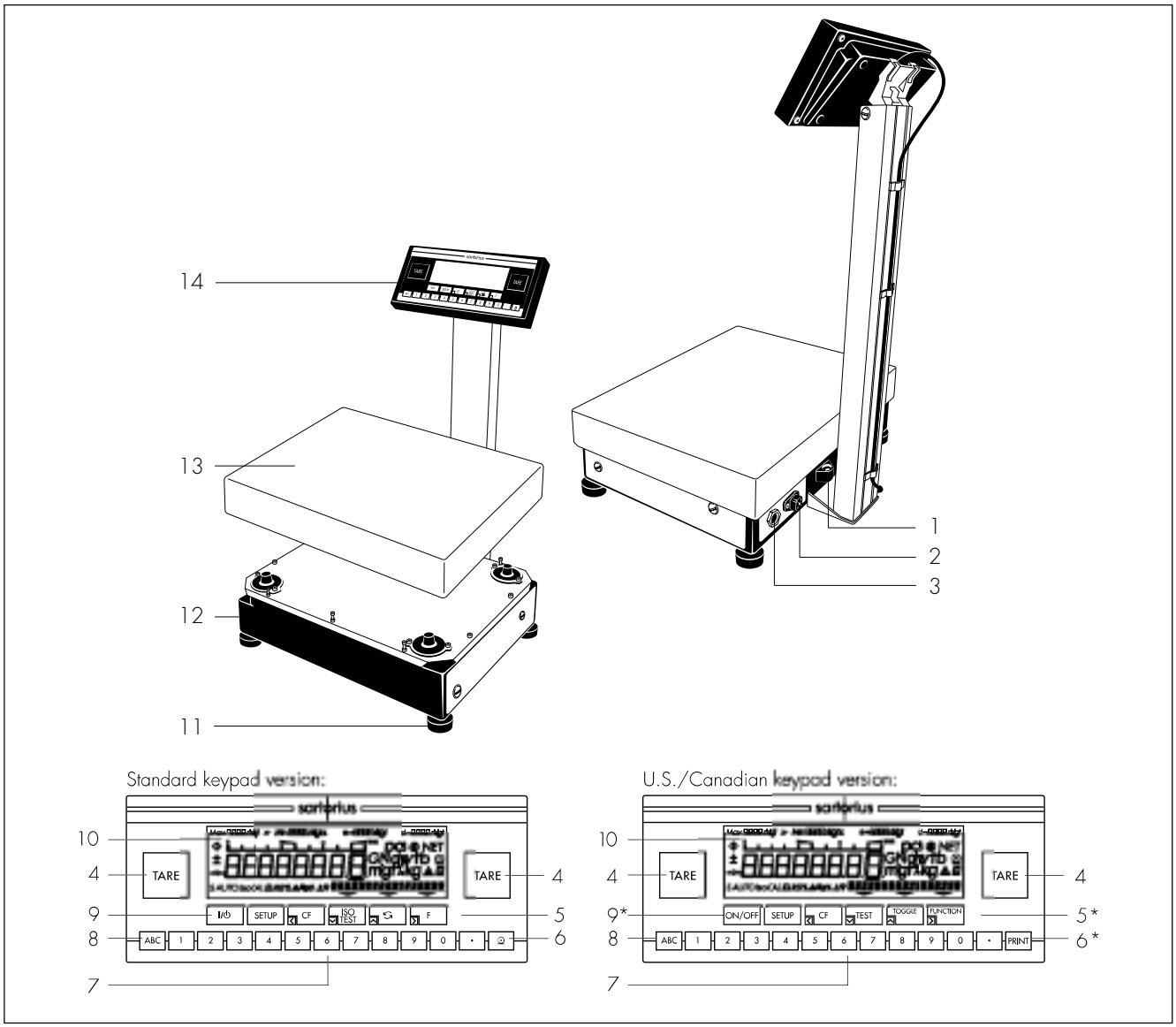
Not shown:

Dust cover for weighing platform	69 60FB01
Dust cover for display & control unit	69 60LP03
Caps and plugs for covering ports (set)	69 B20009

[1]) including the Signatories of the Agreement on the European Economic Area

Overview of the Scales

FBG34EDE-H, FBG34EDE-P, FBG16EDE-H, FBG12EDE-P, FBG64EDE-S, FBG64EDE-H



* = As shown in this illustration, there are some differences between the standard and the U.S./Canadian keypad versions.

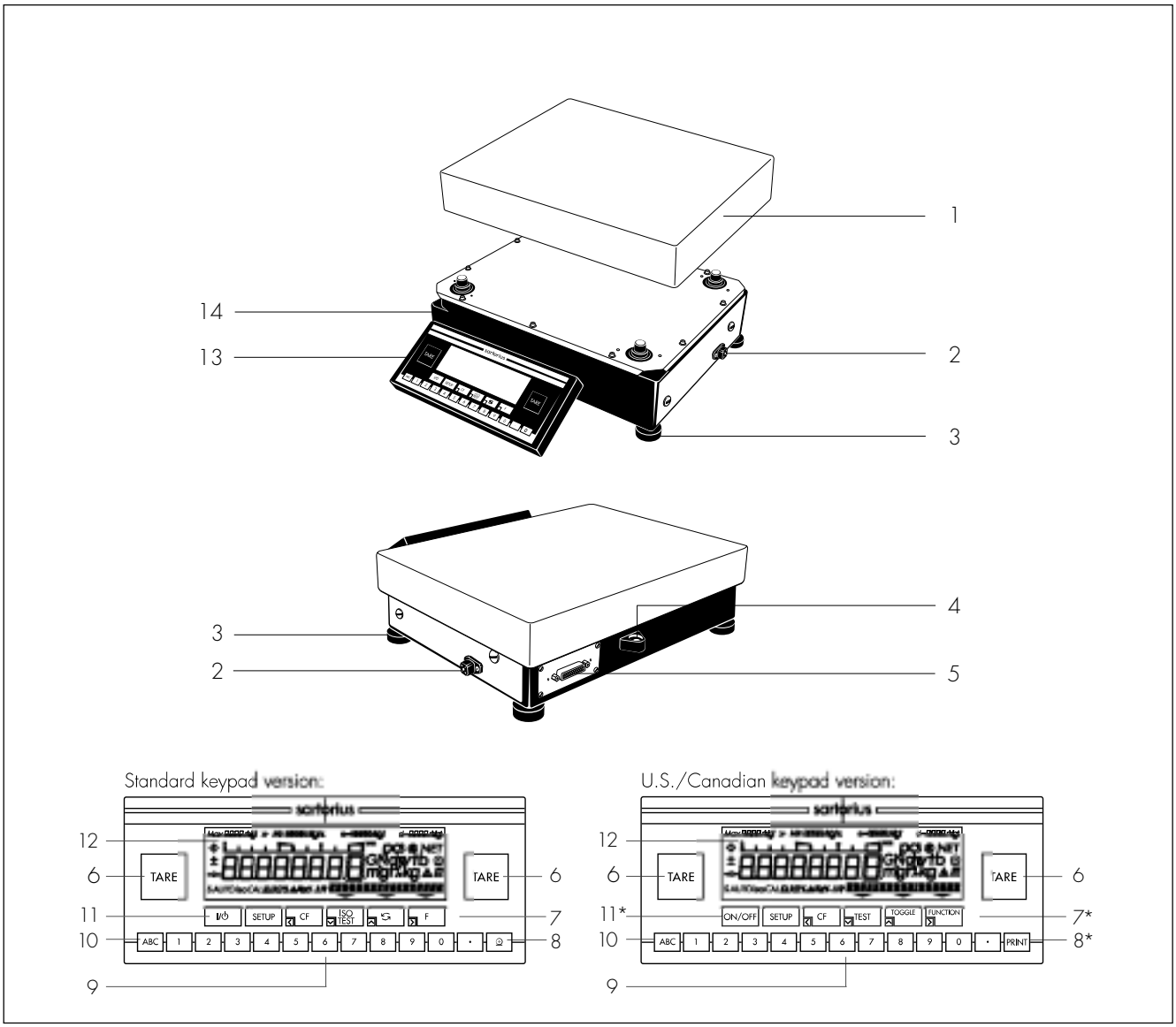
No.	Designation	Spare Part Order No.
1	Level indicator	
2	AC power socket	
3	Data interface port	
4	Tare key	
5	Function keys	
6	Print key	
7	Numeric keys	
8	Shift key for entering letters	
9	On/off key	
10	Display	
11	Leveling foot	69 LC0093
12	Metrological ID label (only on scales verified for legal metrology in the EU[1])	
13	Load plate	
14	Display and control unit	

Not shown:
Dust cover for display & control unit 69 60LP03

[1]) including the Signatories of the Agreement on the European Economic Area

Overview of the Scales

FBG34EDE-P0000B, FBG64EDE-S0000B



* = As shown in this illustration, there are some differences between the standard and the U.S./Canadian keypad versions.

No.	Designation	Spare Part Order No.
1	Load plate	
2	AC power socket	
3	Levelling foot	69 LC0093
4	Level indicator	
5	Data interface port	
6	Tare key	
7	Functions keys	
8	Print key	
9	Numeric keys	
10	Shift key for entering letters	
11	On/off key	
12	Display	
13	Display and control unit	
14	Metrological ID label (only on scales verified for legal metrology in the EU[1])	

Not shown:
Dust cover for display & control unit 69 60LP03

[1]) including the Signatories of the Agreement on the European Economic Area

Description of the Keys

[I/⏻]/[ON/OFF] key
On/off switch

Turns the display on and off. The scale remains in the standby mode.

[SETUP] key
Settings for configuring the scale

- Access to the Setup menu
- Stores settings and exits Setup menu

  You can select:
  INFO
  Display basic information about the equipment (e.g., model name, serial no., software version)

  MENU
  Scale menu with plain English prompts guide you while adapting the scale to individual requirements

  INPUT
  For entering identifying information (e.g., ID number)

[CF] key
Clear

This key is generally used to interrupt/cancel functions:

- Deletes keypad inputs and clears the memory
- Cancels calibration/adjustment routines in progress
- Returns application programs to previous status

[ISOTEST]/[TEST] key
Calibration/adjustment

Press this key to select and start calibration and adjustment functions

[⇆]/[TOGGLE] key
Toggle

Use this key to toggle the display readout between a weight and a calculated value (piece count, readout in percent, calculated result)

[F]/[FUNCTION] key

Starts an application

The further procedure depends on the application you have selected. Refer to the particular application you are running in the chapter entitled "Operating the Scale."

[<] [∨] [∧] [>] Cursor keys

These keys enable you to move around within the parameter submenus for Info, Menu and Input in the Setup menu.

[TARE] keys
Tare

Two large keys for initiating the tare function. Ideally situated for both left-handed and right-handed operation. Sets the readout to zero. With scales that have the "PolyRange" weighing range structure, the fine range is available when you press either of these keys.

[ABC] key

Press this key to enter alphabetic characters and/or special characters (*, /, space, etc.).

[1] [2]…[9] [0] keys

For numeric inputs

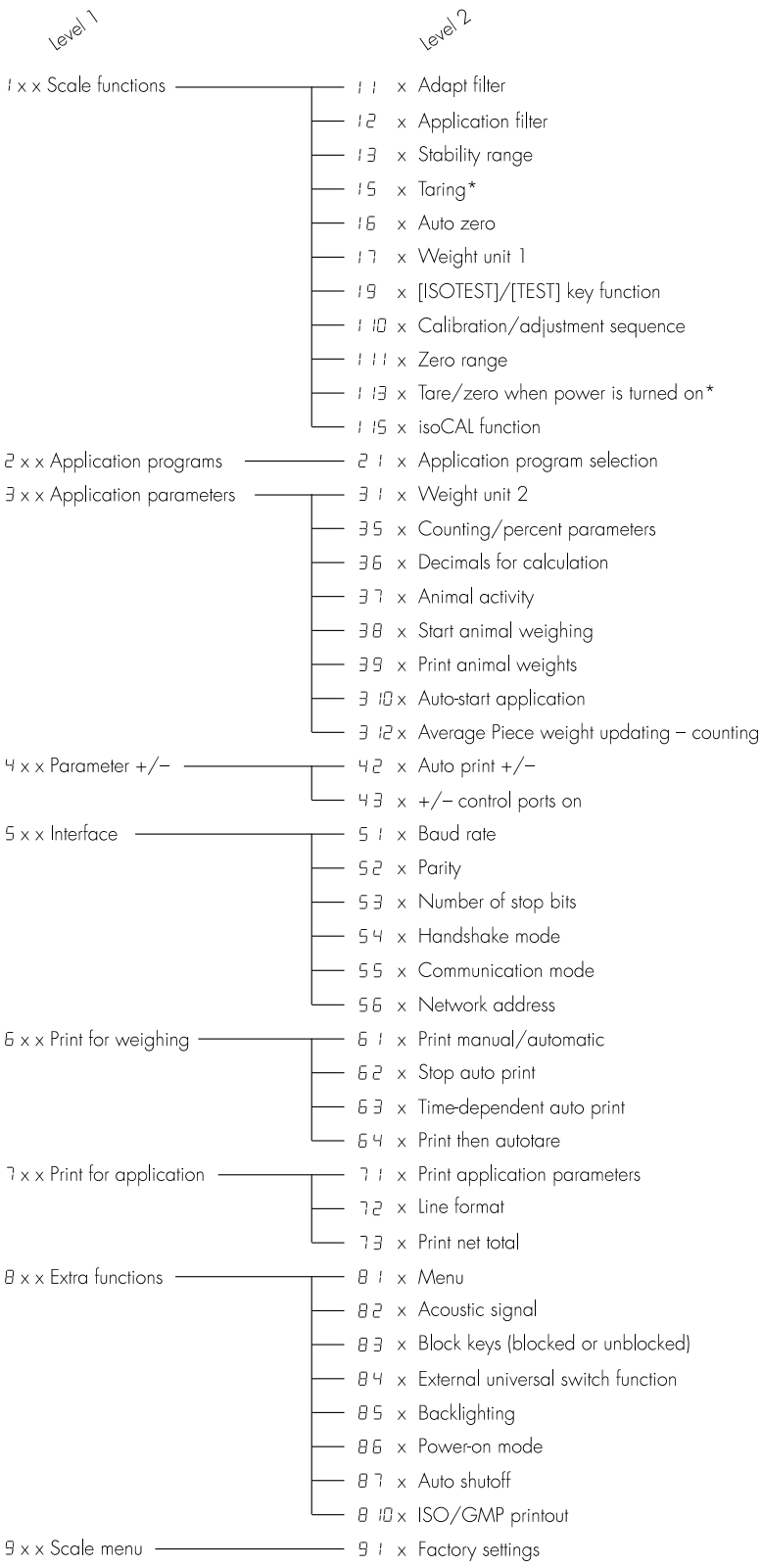
[·] key

Defines the decimal point position

[⎙]/[PRINT] key
Data output

Press this key to output data via the built-in interface to a Sartorius Data Printer or a computer.

Menu Structure


Level 1
Level 2
1 x x Scale functions
1 1 x Adapt filter
1 2 x Application filter
1 3 x Stability range
1 5 x Taring*
1 6 x Auto zero
1 7 x Weight unit 1
1 9 x [ISOTEST]/[TEST] key function
1 10 x Calibration/adjustment sequence
1 11 x Zero range
1 13 x Tare/zero when power is turned on*
1 15 x isoCAL function
2 x x Application programs
2 1 x Application program selection
3 x x Application parameters
3 1 x Weight unit 2
3 5 x Counting/percent parameters
3 6 x Decimals for calculation
3 7 x Animal activity
3 8 x Start animal weighing
3 9 x Print animal weights
3 10 x Auto-start application
3 12 x Average Piece weight updating – counting
4 x x Parameter +/–
4 2 x Auto print +/–
4 3 x +/– control ports on
5 x x Interface
5 1 x Baud rate
5 2 x Parity
5 3 x Number of stop bits
5 4 x Handshake mode
5 5 x Communication mode
5 6 x Network address
6 x x Print for weighing
6 1 x Print manual/automatic
6 2 x Stop auto print
6 3 x Time-dependent auto print
6 4 x Print then autotare
7 x x Print for application
7 1 x Print application parameters
7 2 x Line format
7 3 x Print net total
8 x x Extra functions
8 1 x Menu
8 2 x Acoustic signal
8 3 x Block keys (blocked or unblocked)
8 4 x External universal switch function
8 5 x Backlighting
8 6 x Power-on mode
8 7 x Auto shutoff
8 10 x ISO/GMP printout
9 x x Scale menu
9 1 x Factory settings

* = setting cannot be changed in scales used for legal metrology

Specifications

Standard Models

General Specifications:

Power requirements; voltage	230 V or 115 V via AC adapter, +15% ... – 20%	
Frequency	48 – 60 Hz	
Allowable ambient operating temperature	0 ... +40 °C (273 ... 313 K, 32 °F ... 104 °F)	
Operating temperature range	+10 ... +30 °C	
Adaptation to ambient conditions and application requirements	By selection of 1 of 4 optimized filter levels	
Display update (depends on the filter level selected)	0.1 – 0.4	
Power consumption	16 VA maximum; 9 VA average	
Hours of operation with external rechargeable battery pack, YRB06Z, when fully charged, approx.	14 h	
Selectable weight units	Grams, kilograms, carats, pounds, ounces, troy ounces, Hong Kong taels, Singapore taels, Taiwanese taels, grains, pennyweights, milligrams, parts per pound, Chinese taels, momme, Austrian carats, tola, baht and mesghal	
Selectable application programs	Mass unit conversion (toggling), counting, weighing in percent, net-total formulation, animal weighing, checkweighing	
Built-in interface	RS-232C	
	Format:	7-bit ASCII, 1 start bit, 1 or 2 stop bits
	Parity:	Odd, even or space
	Transmission rates:	150 to 19,200 baud
	Handshake:	Software or hardware

Specifications for the Particular Models:

Model		FB06BBE-S, FB06BBE-S0UR*	FB6CCE-H, FB6CCE-H0UR*	FB2CCE-S, FB2CCE-S0UR*	FB12CCE-S, FB12CCE-S0UR*	FB6CCE-S, FB6CCE-S0UR*
Readability	g	0.001	0.01	0.01	0.1	0.1
Weighing capacity	g	620	6,200	2,200	12,000	6,200
Max. overload capacity	kg	3	25	10	50	50
Tare range (by subtraction)	g	– 620	– 6,200	– 2,200	– 12,000	– 6,200
Preload that can be electronically compensated for (without restricting the weighing capacity)	g	93	–	110	1,200	1,240
Max. preload at the beginning of calibration/adjustment (scale display must be zeroed)	g	110	5,200	1,300	10,000	6,400
Repeatability	≤±g	0.001	0.01	0.01	0.05	0.05
Linearity	≤±g	0.002	0.02	0.02	0.2	0.1
Sensitivity drift between +10 ... +30 °C	≤±/K	2 · 10-6	2 · 10-6	2 · 10-6	4 · 10-6	4 · 10-6
Response time (average)	s	1.5	1.5	1.5	1	1
External calibration weight (at least of the accuracy class indicated)	g	500 (E2)	5,000 (E2)	2,000 (F1)	5,000 (F1)	5,000 (F2)
Load plate size	mm	Ø 130	218 x 200	218 x 200	218 x 200	218 x 200
Platform dimensions (W x D x H)	mm	240x294x86	240x294x86	240x294x86	240x294x86	240x294x86
Net weight, approx.	kg	6.2	8.7	7.6	8.7	6.7
Dust and water protection rating of the scale according to EN 60529		IP54				

* = U.S./Canadian Keypad version

Model		FB16EDE-S, FB16EDE-S0UR*	FB34EDE-P, FB34EDE-P0UR*	FB12EDE-P, FB12EDE-P0UR*	FB64EDE-S, FB64EDE-S0UR*
Readability	g	0.1	0.1/0.2/0.5	0.1/0.2	1
Weighing capacity	kg	16	8/16/34	6/12	64
Max. overload capacity	kg	130	130	130	130
Tare range (by subtraction)	kg	– 16	– 34	– 12	– 64
Preload that can be electronically compensated for (without restricting the weighing capacity)	kg	4	–	3	–
Max. preload at the beginning of calibration/adjustment (scale display does not have to be zeroed)	kg	18	18	15	32
Repeatability	≤±g	0.1	0.1/0.2/0.5	0.1/0.2	1
Linearity	≤±g	0.2	0.2/0.2/0.5	0.2	2
Sensitivity drift between +10 … +30 °C	≤±/K	2 · 10-6	2 · 10-6	2 · 10-6	3 · 10-6
Response time (average)	s	1.5	1.5	1.5	1
External standard calibration weight (at least of the accuracy class indicated)	kg	10 (F1)	10 (F2)	10 (F1)	10 (F2)
Load plate size	mm	307 x 417			
Net weight, approx.	kg	15.8			
Dust and water protection rating of the scale housing acc. to EN 60529		IP65			

* = U.S./Canadian Keypad version

Model		FBG64EDE-H, FBG64EDE-H0UR*	FBG34EDE-H, FBG34EDE-H0UR*	FBG16EDE-H, FBG16EDE-H0UR*
Readability	g	0.1	0.1	0.1
Weighing capacity	kg	64	34	16
Max. overload capacity	kg	130	130	130
Tare range (by subtraction)	kg	– 64	– 34	– 16
Preload that can be electronically compensated for (without restricting the weighing capacity)	kg	13	4	4
Max. preload at the beginning of calibration/adjustment (scale display does not have to be zeroed)	kg	ca. 45	ca. 21	ca. 19
Repeatability	≤±g	0.1	0.1	0.05
Linearity	≤±g	0.5	0.2	0.2
Sensitivity drift between +10 ... +30 °C	≤±/K	3 · 10-6	2 · 10-6	2 · 10-6
Response time (average)	s	1.5	1.5	1.5
External standard calibration weight (at least of the accuracy class indicated)	kg	10 (F1)	10 (F1)	10 (F1)
Platform dimensions	mm	300 x 400		
Net weight, approx.	kg	16.0		
Dust and water protection rating of the scale housing acc. to EN 60529		IP44	IP65	IP65

Model		FBG34EDE-P, FBG34EDE-P0UR*, FBG34EDE-P0000B	FBG12EDE-P, FBG12EDE-P0UR*	FBG64EDE-S, FBG64EDE-S0UR*, FBG64EDE-S0000B
Readability	g	0.1/0.2/0.5	0.1/0.2	1
Weighing capacity	kg	8/16/34	6/12	64
Max. overload capacity	kg	130	130	130
Tare range (by subtraction)	kg	– 34	– 12	– 64
Preload that can be electronically compensated for (without restricting the weighing capacity)	kg	4	4	13
Max. preload at the beginning of calibration/adjustment (scale display does not have to be zeroed)	kg	ca. 21	ca. 10	ca. 45
Repeatability	≤±g	0.05/0.05/0.1	0.05/0.05	0.3
Linearity	≤±g	0.2	0.2	1
Sensitivity drift between +10 ... +30 °C	≤±/K	2 · 10-6	2 · 10-6	3 · 10-6
Response time (average)	s	1.5	1.5	1.5
External standard calibration weight (at least of the accuracy class indicated)	kg	10 (F2)	10 (F1)	10 (F2)
Platform dimensions	mm	300 x 400		
Net weight, approx.	kg	16.0		
Dust and water protection rating of the scale housing acc. to EN 60529		IP65		

* = U.S./Canadian Keypad version

Models Verified* by the Manufacturer and with EC Type Approval

General Specifications:

Power requirements, voltage	230 V or 115 V via AC adapter, +15% ... – 20%	
Frequency	48 – 60 Hz	
Range of use (temperature)	+10 ... +30 °C	
Adaptation to ambient conditions and application requirements	By selection of 1 of 4 optimized filter levels	
Display update (depends on the filter level selected)	0.1 – 0. 4	
Power consumption	16 VA maximum; 9 VA average	
Hours of operation with external rechargeable battery pack, YRB06Z, when fully charged, approx.	14 h	
Selectable application programs	Mass unit conversion (toggling), counting, weighing in percent, net-total formulation, animal weighing, checkweighing	
Built-in interface	RS-232C	
	Format:	7-bit ASCII, 1 start bit, 1 or 2 stop bits
	Parity:	Odd, even or space
	Transmission rates:	150 to 19,200 baud
	Handshake:	Software or hardware

Specifications for the Particular Models:

Model		FB06BBE-S0CE	FB6CCE-H0CE	FB2CCE-S0CE
Type designation		isoTEST in conjunction with BD BF		
Accuracy class *		(II)	(II)	(II)
Scale interval, d*	g	0.001	0.01	0.01
Maximum capacity, Max*	g	620	6,200	2,200
Verification scale interval, e*	g	0.01	0.1	0.1
Minimum capacity, Min*	g	0.02	0.5	0.5
Max. overload capacity	kg	3	25	10
Tare-balancing range (subtractive)		≤100% of the maximum weighing range		
Preload that can be electronically compensated for (without restricting the weighing capacity)	g	93	–	110
Max. preload at the beginning of calibration/adjustment (scale display must be zeroed)	g	110	5,200	1,300
Application range acc. to CD*	g	0.02 – 620	0.5 – 6,200	0.5 – 2,200
Selectable weight units		g, kg	g, kg	g, kg
Response time (average)	s	1.5	1.5	1.5
Load plate size	mm	Ø 130	218 x 200	218 x 200
Platform dimensions (W x D x H)	mm	240x294x86	240x294x86	240x294x86
Net weight, approx.	kg	6.2	8.7	7.6
Dust and water protection rating of the scale housing acc. to EN 60529		IP54		

* CD = Council Directive 90/384/EEC on non-automatic weighing instruments used within the European Economic Area

Specifications for the Particular Models:

Model		FB12CCE-S0CE	FB6CCE-S0CE	FB12CCE-I0CE
Type designation		isoTEST in conjunction with BD BF		
Accuracy class *		(II)	(II)	(II)
Scale interval, d*	g	0.1	0.1	0.5
Maximum capacity, Max*	g	12,000	6,200	12,000
Verification scale interval, e*	g	1	1	0.5
Minimum capacity, Min*	g	5	5	25
Max. overload capacity	kg	50	50	50
Tare-balancing range (subtractive)		≤100% of the maximum weighing range		
Preload that can be electronically compensated for (without restricting the weighing capacity)	g	1,200	1,240	1,200
Max. preload at the beginning of calibration/adjustment (scale display must be zeroed)	g	8,200	2,440	8,200
Application range acc. to CD*	g	5 – 12,000	5 – 6,200	25 – 12,000
Selectable weight units		g, kg	g, kg	g, kg
Response time (average)	s	1	1	1
Load plate size	mm	218 x 200	218 x 200	218 x 200
Platform dimensions (W x D x H)	mm	240 x 294 x 86	240 x 294 x 86	240 x 294 x 86
Net weight, approx.	kg	8.7	6.7	6.7
Dust and water protection rating of the scale housing acc. to EN 60529		IP54		

Model		FB16EDE-S0CE	FB34EDE-P0CE	FB12EDE-P0CE	FB64EDE-S0CE
Type designation		BB BD 523	BB BD 523	BB BD 523	BB BD 523
Accuracy class *		(II)	(II)	(II)	(II)
Scale interval, d *	g	0.1	0.1/0.2/0.5	0.1/0.2	1
Maximum capacity, Max*	kg	16	8/16/34	6/12	64
Verification scale interval, e *	g	1	1	1	10
Minimum capacity, Min*	g	5	5	5	50
Tare-balancing range (subtractive)		≤100% of the maximum weighing range			
Max. overload capacity	kg	130	130	130	130
Preload that can be electronically compensated for (without restricting the weighing capacity)	kg	4	–	3	–
Max. preload at the beginning of calibration/adjustment (scale display does not have to be zeroed)	kg	15	18	10	14
Application range acc. to CD *	g	5 – 16,000	5 – 34,000	5 – 12,000	50 – 64,000
Selectable weight units		g, kg	g, kg	g, kg	kg
Response time (average)	s	1.5	1.5	1.5	1
Load plate size	mm	307 x 417			
Net weight, approx.	kg	13.8			
Dust and water protection rating of the scale housing acc. to EN 60529		IP65			

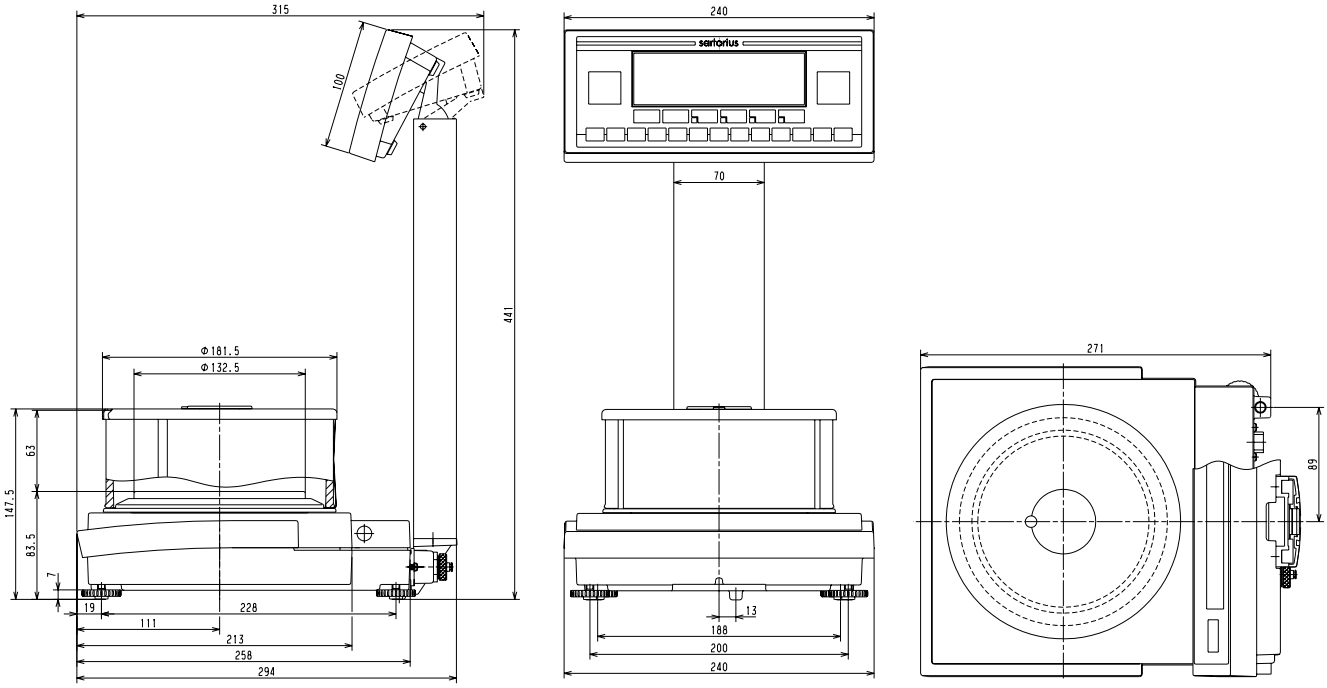
* CD = Council Directive 90/384/EEC on non-automatic weighing instruments used within the European Economic Area

Model		FBG34EDE-H0CE	FBG16EDE-H0CE	FBG34EDE-P0CE	FBG12EDE-P0CE	FBG64EDE-S0CE
Type designation		isoTEST in conjunction with BF BF				
Accuracy class *		(II)	(II)	(II)	(II)	(II)
Scale interval, d*	g	0.1	0.1	0.1/0.2/0,5	0.1/0.2	1
Maximum capacity, Max*	kg	34	16	8/16/34	6/12	64
Verification scale interval, e*	g	1	1	1	1	10
Minimum capacity, Min*	g	5	5	5	5	50
Tare-balancing range (subtractive)		≤ 100% of the maximum weighing range				
Max. overload capacity	kg	130				
Preload that can be electronically compensated for (without restricting the weighing capacity)	kg	4	4	4	4	13
Max. preload at the beginning of calibration/adjustment (scale display does not have to be zeroed)	kg	approx. 21	approx. 19	approx. 21	approx. 10	approx. 45
Application range acc. to CD*	g	5 – 34,000	5 – 16,000	5 – 34,000	5 – 12,000	50 – 64,000
Response time (average)	s	1,5				
Selectable weight units		Gramms and kilograms	Gramms and kilograms	Gramms and kilograms	Gramms and kilograms	Kilograms
Load plate size	mm	300 x 400				
Net weight, approx.	kg	16.0				
Dust and water protection rating of the scale housing acc. to EN 60529		IP65				

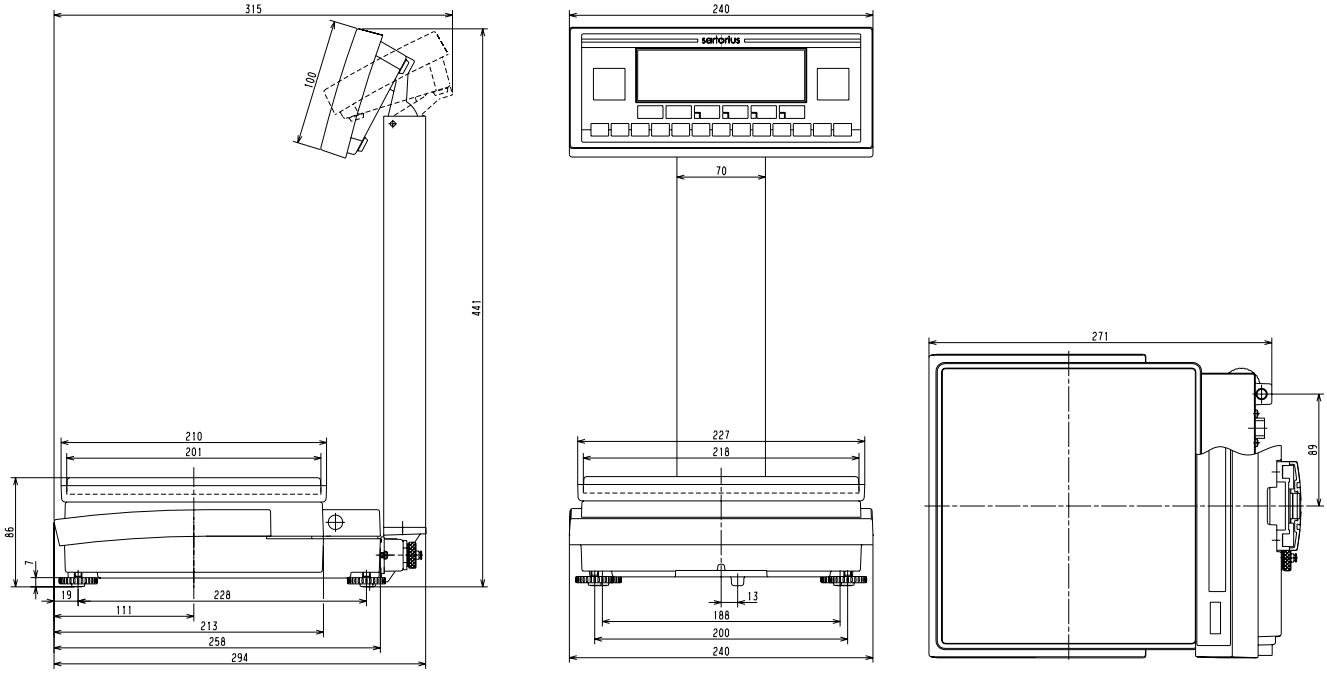
* CD = Council Directive 90/384/EEC on non-automatic weighing instruments used within the European Economic Area

Dimensions (Scale Drawings)

FB06BBE-S (0CE)

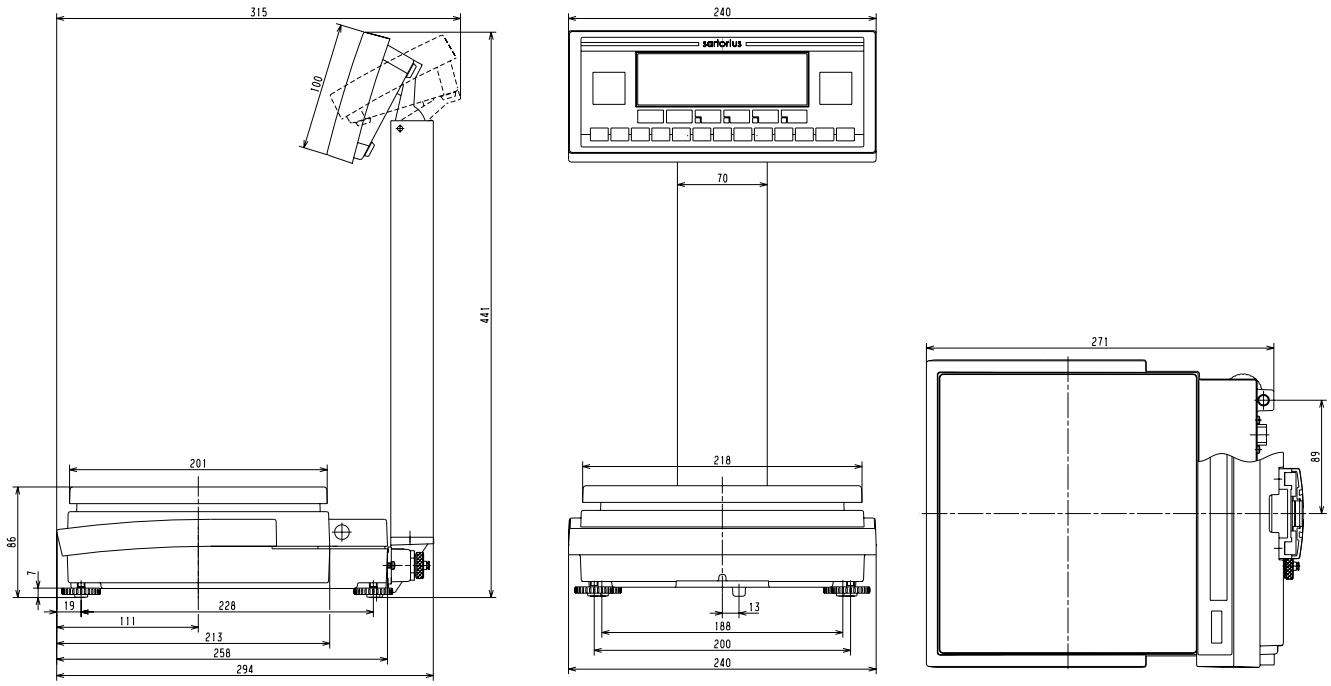


FB6CCE-H (0CE), FB2CCE-S (0CE)

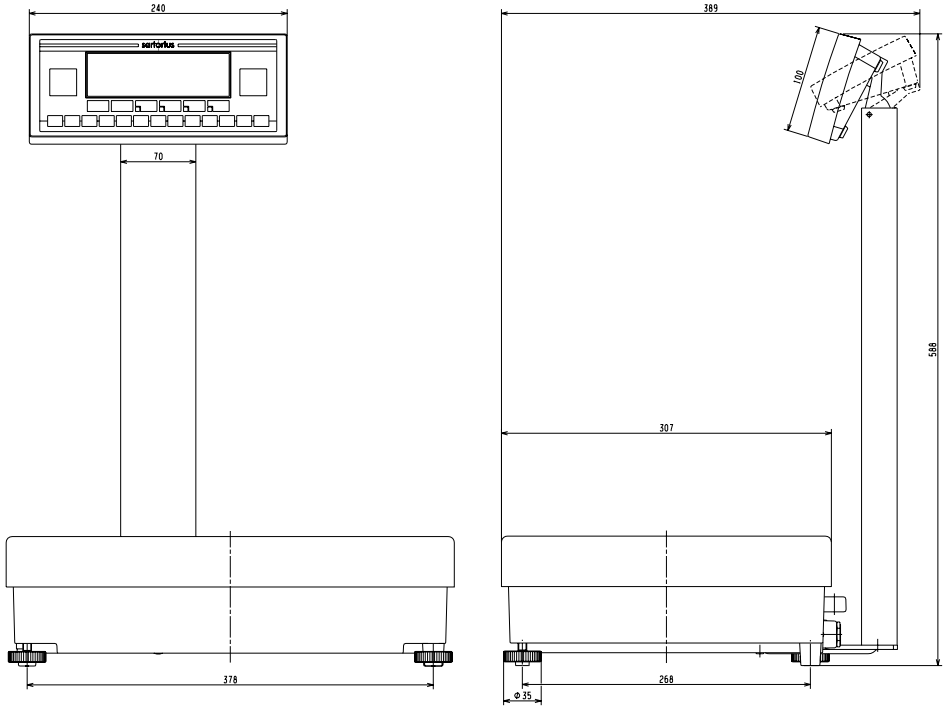


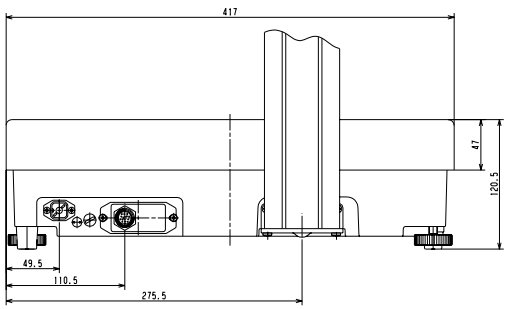
All dimensions are given in millimeters.

FB12CCE-S (0CE), FB6CCE-S (0CE), FB12CCE-I (0CE)



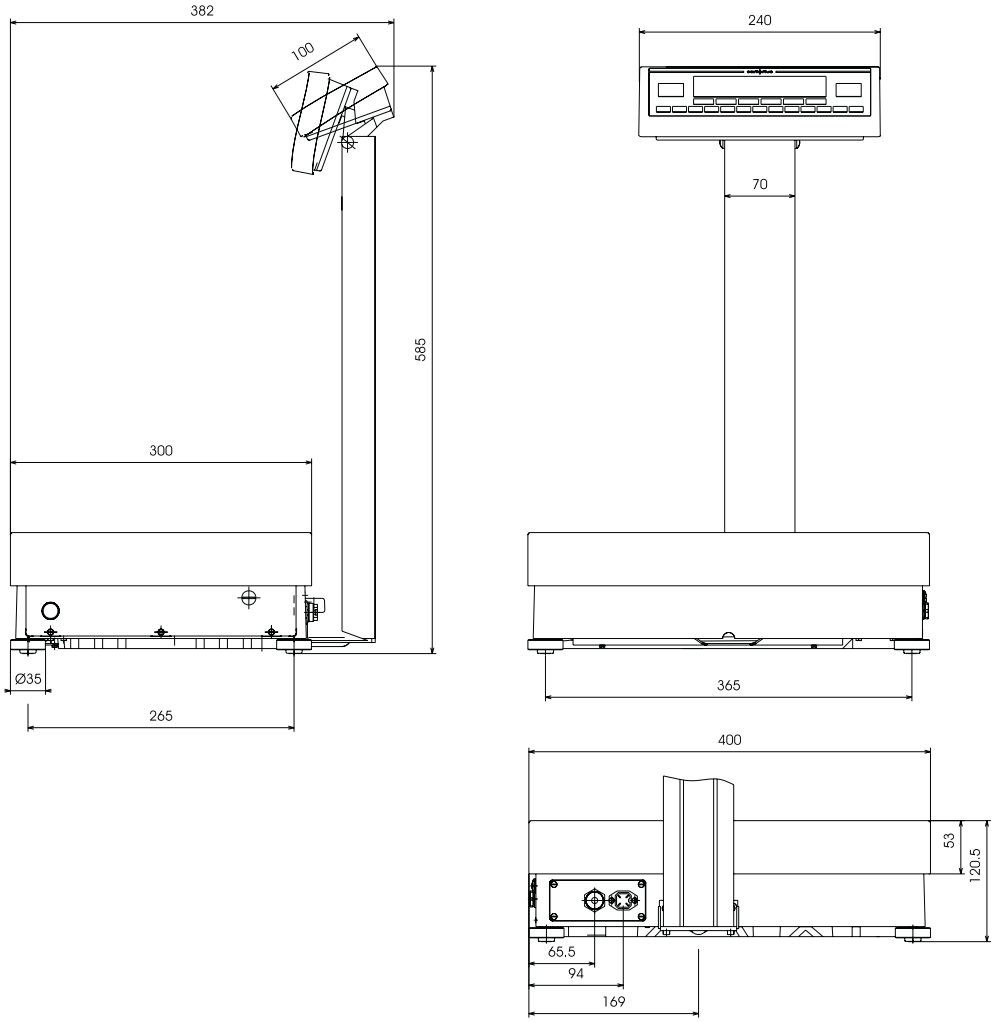
FB16EDE-S (0CE), FB34EDE-P (0CE), FB12EDE-P (0CE), FB64EDE-S (0CE)



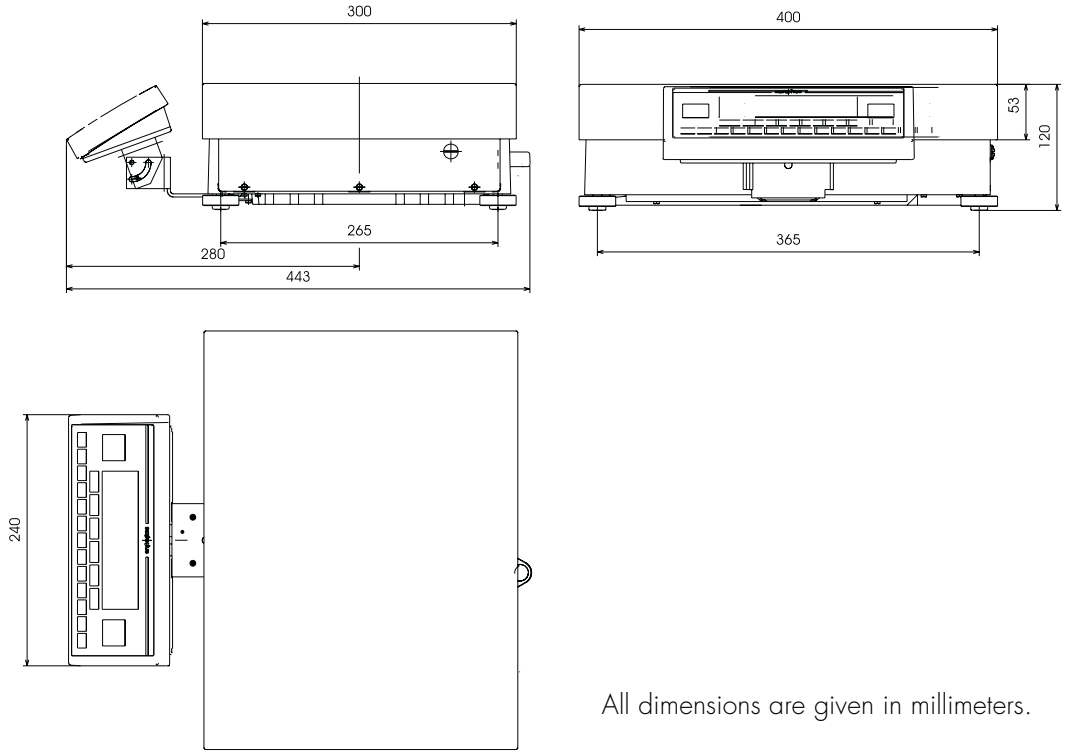


All dimensions are given in millimeters.

FBG64EDE-H, FBG34EDE-H, FBG16EDE-H, FBG34EDE-P, FBG12EDE-P, FBG64EDE-S (0CE)

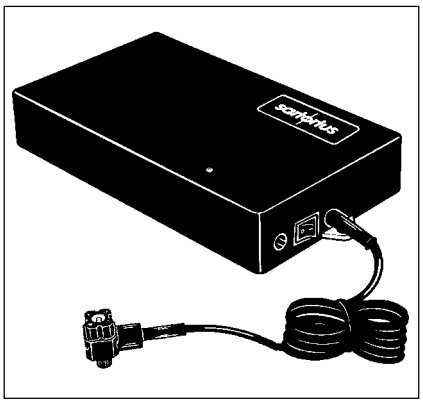


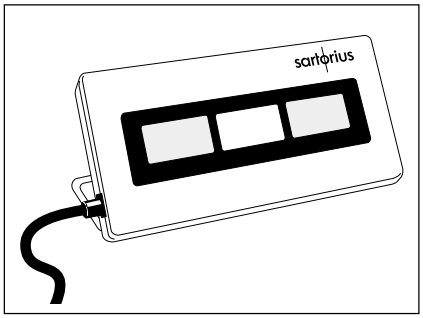
FBG34EDE-P0000B, FBG64EDE-S-0000B



All dimensions are given in millimeters.

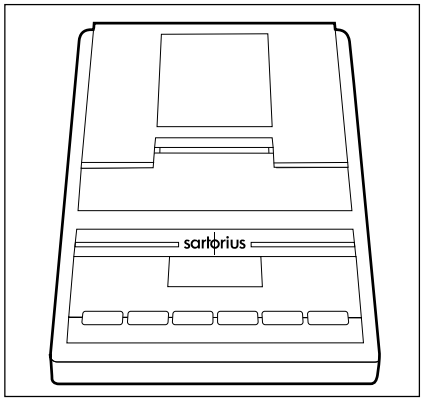
Accessories (Options)





Product	Order No.
External rechargeable battery pack For operation of the scale independently of line current; has a battery-level indicator (LED); can be recharged using the AC adapter (time it takes to recharge after a complete discharge: 15 hours); see "Specifications" for hours of operation Can be used in legal metrology	YRB06Z
3-segment checkweighing display External red/green/red display, for checkweighing or for use as a guide during filling (can be connected using adapter cable YCC01-0016M3) Can be used in legal metrology	YRD11Z
SartoConnect data transfer software for connecting your Sartorius scale to a PC running the Windows 95, 98 or NT operating system. For loading measurement data from the scale into any PC for further processing (e.g., with Excel or Access). Includes 9/12-pin cable for connecting the scale to the PC.	YSC01I
Sartorius WinScale Scale driver software for use under Windows 95/98/2000/NT. Display scale readout on the PC monitor and provides secure memory for storing data that is subject to legal control.	YSW03
Configuration software (PC, DOS) For storing and loading scale settings	YAD01IS
Sartorius "NICE Label Express" For creating customer-specific printouts	YAD02IS
Profibus serial interface – for RS-232 interface – for RS-485 interface	YSPI3-232 YSPI3-485
Interface cable For directly interfacing the scale to the YDP03-0CE data printer	YCC01-0019M3
Adapter cable From round male connector to RS-232-D-Submini female interface connector; for directly connecting Sartorius accessories to the scale	YCC01-0016M3
Extension cable Round male connector/round female connector (6 m)	YCC01-01ISM6
Interface cable for connecting the scale to a PC	YCC01-03ISM5
Adapter cable, from 25-pin D-Submini Male connector to 9-contact D-Submini female connector; length 0.25 m	6965619

Product	Order No.



Data printer — YDP03-0CE

For hard copies with the date, time, statistical evaluation, transaction counter; with an LCD (can be connected using: adapter cable YCC01-0016M3 or directly, without the printer cable included, using the interface cable YCC01-0019M3)
Can be used in legal metrology.

Data printer — YDP02IS-0CE

Strip and label printer with thermal print head; 108 mm paper width (≈ 4.3 in.), connecting cable and external power supply
Can be used in legal metrology.

Data printer — YDP04IS-0CE

Strip and label printer with thermal print head, paper width: max. 60 mm, includes connecting cable and external AC adapter
Can be used in legal metrology.

RS-485 data interface
for FBG...EDE models — YDO01FG
for FB...EDE models — YDO01F
for models with a weighing capacity ≤ 12 kg — YDO02F

Cable for connecting weighing platform to separate display & control unit (length: 2.70 m ≈ 9 ft.)
for FB...EDE models — YCC01-18M3
for models with a weighing capacity ≤ 12 kg — Information available on request

Front-mounted tiltable display and control unit — YDH01F

Wrap-around load plate — YLP01
for models FC6CCE-S, FC12CCE-S, FC12CCE-I

Hook for under-scale weighing — 69EA0040
for FCG models

Calibration weights — Information available on request

for all FB scales; extensive assortment, optionally available with officially recognized DKD certificate

Declarations of Conformity

The CE Mark on Sartorius Equipment

In 1985, the Council of the European Community approved a resolution concerning a new approach to the technical harmonization and standardization of national regulations. The organization for monitoring compliance with the directives and standards concerning CE marking is governed in the individual EU Member States by the implementation of the EC Directives adopted by the respective national laws. As of December 1993, the scope of validity for all EC Directives has been extended to the Member States of the European Union and the Signatories of the Agreement on the European Economic Area.

Sartorius complies with the EC Directives and European Standards in order to supply its customers with weighing instruments that feature the latest advanced technology and provide many years of trouble-free service.

The CE mark may be affixed only to weighing instruments and associated equipment that comply with the applicable Directive(s):

Council Directive 89/336/EEC" Electromagnetic Compatibility (EMC)"

Applicable European Standards:

Limitation of emissions:

EN 50081-1
Residential, commercial and light industry

EN 50081-2
Industrial environment

Defined immunity to interference:

EN 50082-1
Residential, commercial and light industry

EN 50082-2
Industrial environment

Important Note:

The operator shall be responsible for any modifications to Sartorius equipment and for any connections of cables or equipment not supplied by Sartorius and must check and, if necessary, correct these modifications and connections. On request, Sartorius will provide information on the minimum operating specifications (in accordance with the Standards listed above for defined immunity to interference).

Council Directive 73/23/EEC "Electrical Equipment Designed for Use within Certain Voltage Limits"

Applicable European Standards:

EN 60950
Safety of information technology equipment including electrical business equipment

EN 61010
Safety requirements for electrical equipment for measurement, control and laboratory use
Part 1: General requirements

If you use electrical equipment in installations and under ambient conditions requiring higher safety standards, you must comply with the provisions as specified in the applicable regulations for installation in your country.

Weighing Instruments for Use in Legal Metrology: Council Directive 90/384/EEC "Non-automatic Weighing Instruments"

This Directive regulates the determination of mass in legal metrology.

For the respective Declaration of Conformity for weighing instruments that have been verified by SARTORIUS for use as legal measuring instruments and that have an EC Type-Approval Certificate, see the page after next.

This Directive also regulates the performance of the EC verification by the manufacturer, provided that an EC Type-Approval Certificate has been issued and the manufacturer has been accredited by an officer of a Notified Body registered at the Commission of the European Community for performing such verification.

The legal basis allowing Sartorius to perform EC verification is constituted by the EC Council Directive No. 90/384/ EEC on non-automatic weighing instruments that has been in effect since January 1, 1993, in the Internal Market as well as by the Certificate of Accreditation of the Sartorius AG Quality Management System issued by the Metrology Department of the Regional Administration Office of Lower Saxony, Germany ("Niedersächsisches Landesverwaltungsamt – Eichwesen") on February 15, 1993.

For information on the CE mark on Sartorius equipment and legal regulations currently applicable in your country, and to obtain the names of the persons to contact, please ask your local Sartorius office, dealer or service center.

"EC Verfication" – A Service Offered by Sartorius"

Our service technicians who are authorized to perform the verification* of your weighing instruments that are acceptable for legal metrological verification can inspect and verify the metrological specifications at the place of installation within the Member States of the European Union and the Signatories of the European Economic Area.

Subsequent Verifications within the European Countries

The expiration date of the verification depends on the national regulations of the country in which the weighing instrument is used. For information on verification and legal regulations currently applicable in your country, and to obtain the names of the persons to contact, please contact your local Sartorius office, dealer or service center.

* in accordance with the accreditation certificate issued to Sartorius AG

CE Declaration of Type Conformity to Directive No. 90/384/EEC

This declaration is valid for non-automatic electromechanical weighing instruments for use in legal metrology. These weighing instruments accepted for legal metrological verification have an EC Type-Approval Certificate. The model(s) concerned is(are) listed below along with the respective type, accuracy class, and number of the EC Type-Approval Certificate:

Model	Type	Accuracy Class	EC Type Approval No.	In Conjunction with Test Certificate	
				Type	Certificate No.
FB/FC.....-.0CE	iso-TEST	II	D97-09-018	MA BF	D09-96.30
FB/FC.....-.0CE	iso-TEST	II	D97-09-018	BA BF	D09-96.30
FB/FC.....-.0CE	iso-TEST	II	D97-09-018	BB BD	D09-95.08
FBG/FCG.....-.0CE	iso-TEST	II	D97-09-018	BF BF	D09-96.30
FC.....-X.CE	iso-TEST	II	D97-09-018	MA BF	D09-96.30
FC.....-.XCE	iso-TEST	II	D97-09-018	BA BF	D09-96.30
FB/FC.....-.XCE	iso-TEST	II	D97-09-018	BD BF	D09-96.30
FBG/FCG.....-.XCE	iso-TEST	II	D97-09-018	BF BF	D09-96.30

SARTORIUS AG declares that its weighing instrument types comply with the requirements of the Council Directive on non-automatic weighing instruments, no. 90/384/EEC of 20 June 1990; the associated European Standard "Metrological aspects of non-automatic weighing instruments," No. EN 45501; the amended, currently valid versions of the national laws and decrees concerning legal metrology and verification in the Member States of the European Union, the EU, and the Signatories of the Agreement on the European Economic Area, which have adopted this Council Directive into their national laws; and with the requirements stipulated on the Type-Approval Certificate for verification. This Declaration of Type Conformity is valid only if the ID label on the weighing instrument has the CE mark of conformity and the green metrology sticker with the stamped letter "M" (the two-digit number in large print stands for the year in which the mark has been affixed):

If these marks are not on the ID label, this Declaration of Type Conformity is not valid. Validity can be obtained, for example, by submitting the weighing instrument for final action to be taken by an authorized representative of SARTORIUS AG. The period of validity of this Declaration of Type Conformity shall expire upon any tampering with, repair or modification of this weighing instrument or, in some Member States, on the date of expiration.
The operator of this weighing instrument shall be responsible for obtaining an authorized renewal of the verification, such as subsequent or periodic verification, of the weighing instrument for use as a legal measuring instrument.

Sartorius AG
37070 Goettingen, Germany
Signed in Göttingen, 29.10.2001

M. Warter
(Executive Board)

Dr. G. Maaz
(Head of Technical Operations)

OAW–113-2/02.96
P106ec00.doc

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

EG-Bauartzulassung

EC type-approval certificate

Zulassungsinhaber: *Issued to:*	Sartorius AG Weender Landstraße 94-108 37075 Göttingen Bundesrepublik Deutschland
Rechtsbezug: *In accordance with:*	§ 13 des Gesetzes über das Meß- und Eichwesen *(verification act)* vom*/dated* 23. März 1992 (BGBl. I S. 711) in Verbindung mit Richtlinie *(in connection with council directive)* 90/384/EWG, geändert durch *(amended by)* 93/68/EWG
Bauart: *In respect of:*	Nichtselbsttätige elektromechanische Waage *Nonautomatic electromechanical weighing instrument* Typ/*type*: iso-TEST Genauigkeitsklasse/*class* (I), (II), (III), (IIII) Max 0,05 kg ... 300 t Option: Mehrteilungswaage, Mehrbereichswaage *Multi-interval instrument, multiple range instrument*
Zulassungsnummer: *Approval number:*	**D97-09-018 2. Revision**
Gültig bis: *Valid until:*	26.06.2007
Anzahl der Seiten: *Number of pages:*	11
Geschäftszeichen: *Reference No.:*	1.14 – 00035920
Benannte Stelle: *Notified Body:*	0102

Im Auftrag
By order

Link

PHYSIKALISCH-TECHNISCHE BUNDESANSTALT 40

Braunschweig, 24.07.2000

Siegel
Seal

394 06 b-fb

Die Hauptmerkmale, Zulassungsbedingungen und Auflagen sind in der Anlage enthalten, die Bestandteil der EG-Bauartzulassung ist. Hinweise und eine Rechtsbehelfsbelehrung befinden sich auf der ersten Seite der Anlage

The principal characteristics, approval conditions and special conditions, if any, are set out in the Annex which forms an integral part of the EC type-approval certificate. For notes and information on legal remedies, see first page of the Annex.

PTB

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

Prüfschein

Test certificate

Ausgestellt für: *Issued to:*	Sartorius AG Weender Landstraße 94 – 108 37075 Göttingen Bundesrepublik Deutschland
Prüfgrundlage: *In accordance with:*	EN 45501 (1992), Nr.8.1, OIML R 76-1 (1992)
Gegenstand: *Object:*	Lastaufnehmer mit Wägezelle und Auswerteelektronik mit digitalem Ausgang als Modul einer elektromechanischen Waage zum Anschluß an geeignete Anzeige- und Bedienterminals *Load receptor with load cell and electronic device with digital output as module of an electromechanical weighing instrument for connection to suitable display- and operator-terminals* Typ / *type* **BA BF, BC BF, BD BF, BF BF, MA BF und MD BF**
Kennummer: *Serial number:*	---
Prüfscheinnummer: *Test certificate number:*	D09-96.30 4. Revision / *Revision 4*
Datum der Prüfung: *Date of Test:*	
Anzahl der Seiten: *Number of pages:*	10
Geschäftszeichen: *Reference No.:*	1.14 – 01052687
Benannte Stelle: *Notified Body:*	0102

Im Auftrag
By order

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PHYSIKALISCH-TECHNISCHE BUNDESANSTALT 40

Braunschweig, 2001-10-09

Siegel
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392 00 e-rb

Hinweise siehe erste Seite der Anlage, die Bestandteil des Prüfscheines ist.
For notes, see first page of the Annex which forms an integral part of the test certificate.

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

Test Certificate

N° D09-95.08 Revision 1

Testing of a

Weighing platform with electronic evaluation unit of type BB BD

issued by:	Physikalisch-Technische Bundesanstalt
issued to:	Sartorius AG Weender Landstraße 94-108 D-37075 Göttingen Federal Republic of Germany
in accordance with:	EN 45501 (1992) (This standard essentially corresponds to OIML Recommendation R 76-1, 1992 Edition
Object tested:	Weighing platform with load cell and electronic device with digital output as module of an electromechanical weighing instrument for connection to suitable display and operator terminals
Manufacturer:	Sartorius AG, Göttingen

The essential functions and characteristics of this module, the conditions to be observed and the specification of the relevant documentation are set out in the Appendix hereto. The module meets the requirements of EN 45501, as far as applicable; it may be used for purposes subject to legal control as module of an electromechanical weighing instrument provided that the conditions stated in EN 45501 and in the Appendix hereto are observed.

The Appendix is an integral part of this Test Certificate and comprises 5 pages.

This Revision 1 replaces Test Certificate D09-95.08 dated 15.03.1995, Reference N°. 1.13-5.070.

By order

Braunschweig, 14.07.1995
Reference No: 1.13-95.180

(Brandes)

Seal

Physikalisch-Technische Bundesanstalt
Bundesallee 100
D 38116 Braunschweig
Federal Republic of Germany

L.S.

Further information and legal remedy instructions see over-leaf. Test certificates are valid only with signature and seal. This test certificate shall be reproduced only in full. Partial reproduction or modification only upon permission of the Physikalisch-Technische Bundesanstalt.

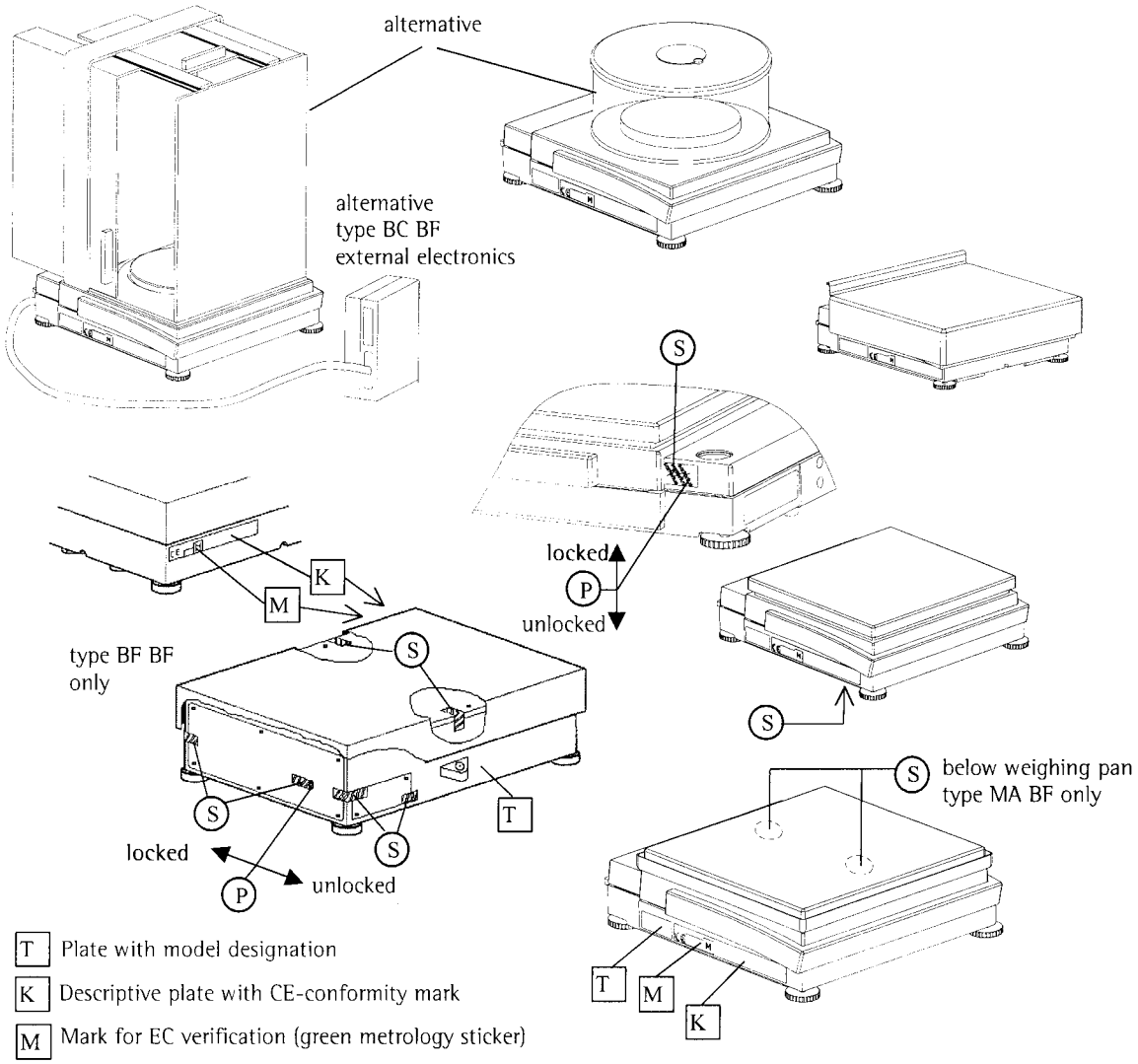
Z.14-755 320 34-10.93

This is to certify that the above translation from the German language has been made at the Physikalisch-Technische Bundesanstalt. The original has been produced.

(G. Panagiotidis)
Foreign Languages Department

Braunschweig, May 28, 1998

Plates and Markings



T Plate with model designation

K Descriptive plate with CE-conformity mark

M Mark for EC verification (green metrology sticker)

S Protective seal, not for accuracy class (I)

P Menu access switch

Indicating and operator terminals isi..., YAC01LA..., YAC01LP..., YAC01FC..., YAC02FC..., front-mounted, raised (post-mounted) or positioned separately.
Alternative to terminal: PC with Sartorius Win Scale YSW03 software

Example of descriptive plate of the already verified weighing instrument K

SARTORIUS AG GÖTTINGEN Germany iso-TEST 12345678 D97-09-018
CE 0111 M (II) +10°C / +30°C
Max 8200 g d= 0,01 g
Min 0,5 g e= 0,1 g

Example of plate with model designation T

Weighing module

BD BF
FC6CCE-H0CE D09-96.30
12345678

Indicating and operator terminal

SARTORIUS AG GÖTTINGEN Germany
YAC01LA -000FC
12345678

PPBF151001e

Type: BA BF, BC BF, BD BF, BF BF, MA BF, MD BF
EC Type-approval D97-09-018 + EC Test certificate D09-96.30

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Appendix

Entering the General Password

Enter/Change Password

Select the Setup menu: SETUP

> The soft keys *INFO*, *MENU* and *INPUT* are displayed in the text line

Select the user data input function: Press the *INPUT* soft key (F/[FUNCTION])

> The password prompt is displayed (*ENTER PASSW.*)

Enter the General Password (see below)

Press the *ENTER PASS.* soft key (F/[FUNCTION])

> The last 8 digits of a workstation ID (balance ID no.), if available, are displayed in the measured value line

Select password setting: Press ∨

> If a password exists, it is now displayed in the measured value line

New password: Enter the letters/numbers for the new password (8 characters max.)

To delete the password, enter a decimal point using the · key and confirm

Confirm input: Press >

Exit the Setup menu: Press SETUP

> Restart your application

General Password: 40414243

Sartorius AG
✉ 37070 Goettingen, Germany
📦 Weender Landstrasse 94–108, 37075 Goettingen, Germany
☎ (+49/551) 308-0, FAX (+49/551) 308-3289
Internet: http://www.sartorius.com

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